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BLUE BOOK

1942

for manufacturers and distributors of

SOAPS
INSECTICIDES
DISINFECTANTS
CHEMICAL SPECIALTIES
SANITARY SUPPLIES
POLISHES
CLEANERS

Issued Annually by the Publishers of

SOAP AND SANITARY CHEMICALS

NEW YORK



PRESENTED BY MacNair-Dorland Company

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MacNAIR-DORLAND CO.

DU PONT
REG. U.S. PAT. OFF.

AROMATICS

for the soap manufacturer

ALCOHOL C-8
ALCOHOL C-10
ALCOHOL C-12
ALPINE VIOLET (Cyclamen Aldehyde)
ANISIC ALCOHOL
ANISYL ACETATE
ANTIOXIDANT No. 101
AUBEPINE LIQUID (Anisic Aldehyde)
BERGAMOT ARTIFICIAL
CAMPHENE
CITRONELLOL EXTRA
COUMARIN
DIMETHYL ANTHRANILATE
DIMETHYL HYDROQUINONE
GERANIOL
GERANIUM ARTIFICIAL
GERANYL ACETATE EXTRA
GERANYL ACETATE TECHNICAL
HYACYLENE P and S (Dimethyl Acetal of Phenyl Acetaldehyde)
INDOLE
ISO AMYL BENZYL ETHER
ISOBORNEOL
ISOBORNYL ACETATE
ISOPULEGOL ACETATE
ISOPULEGOL
METHYL ANTHRANILATE
METHYL RHODIONE EXTRA
METHYL RHODIONE FOR SOAP
MUGOL (Dimethyl Acetal of Hydroxycitronellal)
PARACRESOL METHYL ETHER
RHODIONE AB
RHODIONE FOR SOAP
SKATOLE
TERPINEOL
TERPINOLENE
VIOLET KETONE

● To insure quality in a finished product, it is essential to use the finest ingredients obtainable and to maintain effective control throughout its production. When you use Du Pont Aromatics, you are assured of the uniformity and high quality which permit proper control in the manufacture of fine soaps.

E. I. DU PONT DE NEMOURS & CO. (INC.)

FINE CHEMICALS DIVISION
WILMINGTON, DELAWARE

40 WORTH STREET
NEW YORK CITY

7 SOUTH DEARBORN STREET
CHICAGO, ILL.

BLUE BOOK
1942

AN ANNUAL BUYERS GUIDE,
DIRECTORY AND REFERENCE
VOLUME FOR MANUFACTURERS
AND DISTRIBUTORS OF SOAPS,
INSECTICIDES, DISINFECTANTS,
POLISHES, CLEANERS AND
ALLIED CHEMICAL SPECIALTIES

Fourteenth Edition

ISSUED ANNUALLY BY

MacNair-Dorland Company

254 West 31st Street New York, N. Y.

MEMO

To manufacturers of soaps, insecticides and disinfectants, Orbis Products Corporation is a recognized source for perfume compounds, fine American and European essential oils, aromatic chemicals and gums — whole or powdered.

Samples cheerfully furnished

ORBIS ESSENTIAL OILS

Oil Bay
Oil Cedarleaf
Oil Cedarwood
Oil Citronella Ceylon
Oil Citronella Java
Oil Cloves
Oil Eucalyptus
Oil Lemon
Oil Lemongrass
Oil Orange
Oil Patchouly
Oil Peppermint
Oil Petitgrain
Oil Rosemary
Oil Sassafras Natural
Oil Spearmint
Oil Thyme—Red
Oil Thyme—White
Oil Wormseed

ORBIS AROMATIC CHEMICALS

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Citral
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Eugenol
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Geraniol
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Safrol
Thymol
Chlorthymol

ORBIS PERFUME COMPOUNDS

For soap
" para
" fly sprays
" insecticides
" sanitary specialties
" paint

ORBIS GUMS

Arabic
Karaya
Tragacanth

ORBIS

PRODUCTS CORPORATION

215 PEARL STREET, NEW YORK - FACTORY & LABORATORY, NEWARK, N.J.

CHICAGO
831 N. Wabash Ave.

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610 Brown Building

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Water Soluble Gums	Waxes	Cosmetic Raw Material	Fruit Flavors
Filter Paper	Stearic Acid	Oleo Resins	Food Colors
Aromatics	Essential Oils	Perfume Bases	Quince Seed
Rice Starch	Zinc Oxide French	Olive Oil	Irish Moss

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Foreword

THE BLUE BOOK is intended as a condensed buying guide for manufacturers and bulk buyers of soaps, insecticides, disinfectants, polishes, cleaners and allied sanitary supplies. It seeks to tell these concerns not only what to buy and where to buy, but how to buy as well.

If you are not listed in this edition of the BLUE BOOK we regret this as much as you do. Questionnaires were mailed to all companies closely identified with the soap and sanitary chemical industries in October. Some of these were not returned. In a book as comprehensive as the BLUE BOOK it is not possible for the editors to spot every missing name even though the final galley proofs are checked three times and many changes and additions are made. **No one was purposely overlooked.** Send for a questionnaire now if your listings are missing or incomplete—but please do not enter a strenuous complaint as we have made every effort to have this BLUE BOOK as complete and accurate as it can be made.

Listings are **never** withheld because a firm is not an advertiser in SOAP & SANITARY CHEMICALS or the BLUE BOOK. A glance through this edition will reveal hundreds of light faced listings—all of non-advertisers. BLUE BOOK advertisers are listed in black face type.

Manufacturers of soaps and sanitary chemicals who are not listed should consider this point—the BLUE BOOK is not intended as a complete list of manufacturers of finished products. It has no consumer circulation and for this reason soap and sanitary chemical listings are confined to firms selling sanitary supply houses and repackers either in bulk or under private brand.

THE PUBLISHERS.

March 15, 1942.



The Finest Milled Pyrethrum and Derris Powders in the World

McCORMICK PYRETHRUM POWDER: Has a known high pyrethrin content. Milled to microscopic fineness—contains more killing particles per ounce—remains suspended in the air longer. More effective and economical because it comes into more intimate contact with the vital parts of the insect's body.

McCORMICK DERRIS POWDER: Also milled to extreme fineness. Standardized at 4% and 5% rotenone. Suitable for use in derris dusts when combined with a carrier, or in aqueous suspension sprays. Will not clog spray nozzles.

Other Derris Derivatives

DERRIS EXTRACT: Contains 5 grams of rotenone per 100 cc. plus the other toxic derivatives of derris root.

DERRIS EXTRACT (Dry): Consists of 25% rotenone and 75% of active resins.

ROTENONE CRYSTALS: Solvate, a white crystalline product, 71% rotenone.

New—Bee Brand Disinfectant

An amazing new Disinfectant and Deodorant with a phenol coefficient of 8 (F.D.A. Method). Possesses high germicidal, deodorizing and fungicidal efficiency. Practically odorless when diluted; can be used where products with carbolic or phenol odors would be unsuitable or objectionable. Does not irritate the skin even if spilled on hands in concentrated form.

For further information about these products address:

The McCormick Sales Co.

BALTIMORE, MARYLAND

IN CANADA: McCORMICK & CO. (CANADA) Ltd.
454 KING STREET, WEST, TORONTO, ONTARIO

Buyers' Guide Section

LISTING SOURCES OF SUPPLY FOR RAW MATERIALS, MACHINERY AND EQUIPMENT BOUGHT BY MANUFACTURERS OF SOAPS AND SANITARY CHEMICALS.

●

Included in this section are the names of manufacturers of soaps and sanitary chemicals who sell private brand and bulk products to jobbers and distributors. It is not intended to list concerns who sell direct to consumers.

INNIS, SPEIDEN & COMPANY

Industrial Chemicals Since 1816

117 LIBERTY STREET NEW YORK, N. Y.

CHICAGO . . . 722 West Hubbard Street, HAymarket 0991
CLEVELAND . . . . 2775 Pittsburgh Avenue, CHerry 6345
CINCINNATI . . . . . 1435 Carew Tower, MAin 2810
BOSTON . . . . . 41 Commercial Wharf, CApitol 3778
PHILADELPHIA . . . 401 N. Broad Street, WAlnut 5328
GLOVERSVILLE, N. Y. . . . 8 West St., GLoversville 3335

ISCO CHEMICALS

ACIDS:

BORIC—99½% and U.S.P. Powdered, Crystals and Granular. Bbls. 300 lbs. Bags 100 lbs.

BORAX—Powdered, Granular, Bbls. 300 lbs. Kegs 100 lbs., Bags 125 lbs.

OLEIC—Red and White.

STEARIC—Double and Triple Pressed. Powder and Slabs. Bags and Cases 221 lbs.

ABSORPTION BASE—a cream and ointment base. Highly water absorbent.

BENTONITE—An absorbing, dewatering agent, emulsifier, water-suspending agent, water softener. Steadily gaining favor for use in soaps, scouring compounds and cleaners of various kinds.

BLEACHING POWDER—(Chloride of Lime) various size packages.

CHALK, Precipitated—Light, Medium and Heavy. U.S.P. Bags and Bbls.

GUMS:

ARABIC—Sorts, Grain, Powder.

KARAYA—Powder.

GHATTI

TRAGACANTH—Ribbon, Flake, Powder. Various grades and crude.

ISCO Insecticide Spray—An outstanding mill spray for general contact use in mills, elevators and food product plants.

LANOLIN—Refined U.S.P.

LANOBASE—ISCO—Super-fatting agent for lanolated soap. All the advantages of Lanolin and none of its drawbacks.

LARVACIDE—(Chlorpicrin) Fumigant. Cylinders 25 to 180 lbs. also 1 lb. bottles, each in safety can, 6 and 12 to wooden case.

POTASHES:

CARBONATE—Hydrated 83/85%, Calcined 96/98%, 98/100%.

CAUSTIC—Flake, Solid, Granular, Broken, Walnut and Liquid.

SERVACIDE Insecticide Spray—A quality contact spray for the most exacting uses, as in bakeries.

SODAS:

CAUSTIC—Solid 700 lb. Drums, Flake 125/400 lb. Drums. Crystals—Bbls. and Drums 500 lbs. Liquid—Tanks and Drums.

FLUORIDE—Light, Fluffy 95/96%. Bbls. 331 lbs.

SILICATE—Various grades.

TRI SODIUM PHOSPHATE—Crystals and Granulated.

SILICA—Soft—Amorphous—For paints, cleansing and polishing materials. Water and Dry Ground. Uniformly fine.

ISCO WAXES

BEESWAX—White, Sunbleached—Discs also Crude—Cases 112 lbs.

CANDELILLA—Refined, Lump and Flake Forms. Bags 125 to 200 lbs.

CARNAUBA—Refined, Lump and Flake. Bags 150/200 lbs.

CERESINE—Orange, Yellow and White. Bags 110 and 200 lbs.

MONTAN SUBSTITUTES

OZOKERITE—Domestic White and Yellow. Bags 100 lbs.

JAPAN WAX SUBSTITUTE No. 525—Cartons 125 lbs

ISCO Chemists and ISCO Facilities are enlisted in Uncle Sam's Victory Effort. THE COUNTRY'S NEEDS COME FIRST—but we are also taking care of our civilian needs to the best of our ability.

ABRASIVES AND FILLERS (Pumice, Silica, Feldspar, Clays, etc.)

American Colloid Co., 363 W. Superior St., Chicago
Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa.
California Industrial Minerals Co., Friant, Calif.
Chas. B. Chrystal Co., 16 Hudson St., N. Y.
Dicalite Co., 120 Wall St., N. Y.
A. C. Drury & Co., 219 E. North Water St., Chicago
K. F. Griffiths Co., 110 E. 42nd St., N. Y.
Goris & Arnstein, 1207 W. 37th St., Chicago
Hammill & Gillespie, 225 Broadway, N. Y.
Johns-Manville, 22 E. 40th St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Nature Minerals Co., 108 W. 6th St., Los Angeles.
Philadelphia Quartz Co., 125 S. 3rd St., Phila.
Jas. H. Rhodes & Co., 157 W. Hubbard St., Chicago
Wm. R. Rogers, 44 Woodman St., Lynn, Mass
L. A. Salomon & Bro., 216 Pearl St., N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Tamms Silica Co., 229 N. La Salle St., Chicago
Charles A. Wagner Co., 809 Callowhill St., Phila.
Whittaker Clark & Daniels, 260 W. B'way, N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

ACETONE

(see also Dealers)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Cliffs-Dow Chemical Co., Marquette, Mich.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
E. I. Du Pont de Nemours, Wilmington, Del.
Wm. S. Gray & Co., 342 Madison Ave., N. Y.
R. W. Greeff & Co., 10 Rockefeller Plaza, N. Y.
Merck & Co., Rahway, N. J.
Publicker Commercial Alcohol Co., 260 E. Broad St., Phila.
U. S. Industrial Chem. Co., 60 E. 42nd St., N. Y.

ACIDS (Sulfuric, Muriatic, Nitric, Acetic, Etc.)

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlas Powder Co, Wilmington, Del.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co., Wilmington, Del.
Hooker Electrochemical Co., Niagara Falls, N. Y. (Muriatic)
Innis, Speiden & Co., 117 Liberty St., N. Y.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Jos. Turner & Co., Ridgefield, N. J.
Victor Chemical Wks., 141 W. Jackson Blvd., Chicago

ADHESIVES

Arabol Mfg. Co., 110 E. 42nd St., N. Y.
Armour Glue Wks., 1355 W. 31st St., Chicago
C. W. Campbell Co., 157 Chambers St., N. Y.
Casein Co. of America, Bainbridge, N. Y.
Dennison Mfg. Co., Framingham, Mass.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
E. I. Du Pont de Nemours & Co., Wilmington, Del.
W. H. Gage Glue Co., 19 S. Main St., St. Louis
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co., Wilmington, Del.
Mechling Bros. Chemical Co., Camden, N. J.
National Adhesives Corp., 822 Greenwich St, N. Y.
National Oil Prods. Co., Harrison, N. J.
National Starch Prods., 830 Greenwich St., N. Y.
Philadelphia Quartz Co., 125 S. 3rd St., Philadelphia
Rohm & Haas Co., 222 W. Washington Sq., Phila.
Sanford Mfg. Co., W. Congress & Peoria St., Chicago
A. E. Staley Mfg. Co., Decatur, Ill.
Stein, Hall & Co., 285 Madison Ave., N. Y.

AGITATORS

Alsop Engineering Corp., Milldale, Conn.
Beach-Russ Co., 50 Church St., N. Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Eastern Engineering Co., 45 Fox St., New Haven, Conn.
Ertel Engineering Corp., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y.
Foster Pump Works, 50 Washington St., Brooklyn
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
J. M. Lehmann Co., 248 Broadway, N. Y.
Littleford Bros., 443 E. Pearl St., Cincinnati
Mixing Equipment Co., Inc., 1067 Garson Ave., Rochester, N. Y.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.
Scientific Filter Co., I Franklin Sq., N. Y.
Ernest Scott & Co., P. O. Box 82, Fall River, Mass.
Sowers Mfg. Co., 1296 Niagara St., Buffalo
Sprout Waldron & Co., Muncy, Pa.
Struthers-Wells Titusville Corp., Warren, Pa.

AGRICULTURAL INSECTICIDES

Aluminum Co. of America, Gulf Bldg., Pittsburgh
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Ansbacher-Siegle Corp., Rosebank, S. I.
Bowker Chemical Co., 50 Church St., N. Y.
California Spray Chemical Corp., Richmond, Calif.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chipman Chemical Co., Bound Brook, N. J.
Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Fuld Bros., Baltimore
General Chem. Co., 40 Rector St., N. Y.
Hooker Electrochemical Co., Niagara Falls, N. Y.
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Jungmann & Co., 74 Trinity Pl., N. Y.
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
McLaughlin, Gormley King Co., 1715—5th St., S. E. Minneapolis
Mechling Bros. Chemical Co., Camden, N. J.
Peck's Products Co., 5240 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Richards Sales Corp., Warren & Morris Sts., Jersey City, N. J.
Rohm & Haas Co., 222 W. Washington Sq., Phila.
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St., St. Louis, Mo.
Sherwin-Williams Co., 292 Madison Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Standard Oil Co., (Calif.), 225 Bush St., San Francisco
Thompson-Hayward Chem. Co., Kansas City, Mo.
Tobacco By-Products & Chem. Corp., Louisville, Ky.
Velsicol Corp., 120 E. Pearson St., Chicago
White Tar Co. of N. J., Belleville Turnpike, Kearney, N.J.
Whitmire Research Corp., 339 S. Vandeventer, St. Louis

AGRICULTURAL INSECTICIDE SPREADERS

American Colloid Co., 363 W. Superior St., Chicago
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Ansbacher-Siegle Corp., Rosebank, S. I.
Atlantic Refining Co., 260 South Broad St., Phila.
Atlas Powder Co., Wilmington, Del.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Dicalite Co., 120 Wall St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
National Oil Prods. Co., Harrison, N. J.
Richards Sales Corp., Jersey City, N. J.
Rohm & Haas Co., 222 W. Washington Sq., Phila.

KAY FRIES
CHEMICALS INC.

Office:
180 Madison Avenue
New York, N. Y.

Plant:
West Haverstraw, N. Y.

ORGANIC AND AROMATIC CHEMICALS

for Soaps, Perfumes, Drugs and Pharmaceuticals, Cosmetics, Denaturing, Insecticides, Fumigation and other purposes

Phenyl Ethyl Alcohol
Phenyl Ethyl Acetate
Phenyl Ethyl Salicylate

Benzyl Acetate
Benzyl Alcohol
Benzyl Benzoate
Ethyl Benzoate

Diethyl Phthalate
Dimethyl Phthalate
Dibutyl Phthalate

Yara Yara
(Beta-Naphthol Methyl Ether)

Benzophenone
Acetophenone
Methyl Acetophenone

Phenyl Acetic Acid
Methyl Phenyl Acetate
Ethyl Phenyl Acetate
Amyl Phenyl Acetate

Alpha Amyl Cinnamic Aldehyde
Methyl Formate
Ethyl Formate

Nerolin
(Beta-Naphthol Ethyl Ether)

PENETROL

A NEUTRAL BASE FOR PYRETHRUM AND ROTENONE PLANT SPRAYS. MIXES EASILY WITH HARD COLD WATER. FORMULAE AND DATA AVAILABLE.

CRESYLIC ACID
AMMONIUM CARBONATE
HIGH-BOILING TAR ACIDS
SODIUM BICARBONATE

U. S. P. FORMALDEHYDE

Sole Selling Agents

American-British Chemical Supplies, Inc.

180 MADISON AVENUE, NEW YORK CITY
Telephone—AShland 4-2265
Cable Address—Bisulphide, New York City

Associated Companies:
CHARLES TENNANT & COMPANY (CANADA) LTD.
133 Wellington Street West, Toronto 2, Canada
CHARLES TENNANT & CO., LTD.
Glasgow, Scotland
BARTER TRADING CORP., LTD.
London, England

AIR COMPRESSORS (see COMPRESSORS, AIR)

ALCOHOL (Ethyl and Denatured)

(see also Dealers)

American Coml. Alcohol Corp., 405 Lexington Ave., N. Y.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Commerce Petroleum Co., 2923 S. Lock Ave., Chicago
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Pennsylvania Sugar Co., 139 S. 3rd St., Phila.
Publicker Commercial Alcohol Co., 260 E. Broad St., Phila.
U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.

ALCOHOL (Methyl or Wood) (See also METHANOL, SYNTHETIC)

(see also Dealers)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Cliffs-Dow Chemical Co., Marquette, Mich.
E. W. Colledge, General Sales Agent, Inc., P. O. Box 389, Jacksonville, Fla.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Publicker Commercial Alcohol Co., 260 S. Broad St., Philadelphia
U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.
Wood Products Co., Buffalo, N. Y.

ALCOHOL, ISO-PROPYL

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Standard Alcohol Co., 26 Bway., N. Y.
U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y.

ALKALIES, see CAUSTIC SODA, SODA ASH, CAUSTIC POTASH, ETC.

ALUMINUM CHIPS (for Drain Solvent)

Aluminum Co. of Amer., Gulf Bldg., Pittsburgh
Belmont Smelting & Ref. Co., 318 Belmont Ave., Bklyn., N. Y.
Reynolds Metals Co., 19 Rector St., N. Y.

ALUMINUM STEARATE (see STEARATES)

ALUMS

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Armour Ammonia Wks., 1355 W. 31st St., Chicago
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila. (Ammonia)
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
E. M. Sergeant Pulp & Chem. Co., Empire State Bldg., N. Y.
Stauffer Chem Co., 420 Lexington Ave., N. Y.

AMALGAMATORS (see SOAP MACHINERY)

AMINOHYDROXY COMPOUNDS

Commercial Solvents Corp., 17 E. 42nd St., N. Y.

AMMONIA, HOUSEHOLD (see HOUSEHOLD AMMONIA)

AMMONIA WATER

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Barrett Co., 40 Rector St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Eastern Inds., Ridgefield, N. J.
General Chemical Co., 40 Rector St., N. Y.
Mallinckrodt Chem. Wks., St. Louis
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Merck & Co., Rahway, N. J.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Jos. Turner & Co., Ridgefield, N. J.

AMMONIUM BI-FLUORIDE (see FLUORIDES)

AMMONIUM CARBONATE

(see also Dealers)

American-British Chm. Supplies, Inc., 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Merck & Co., Rahway, N. J.
Jos. Turner & Co., Ridgefield, N. J.

AMMONIUM CHLORIDE

American Cyanamid & Chem. Co., 30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Hercules Powder Co., Wilmington, Del.
Jungmann & Co., 74 Trinity Pl., N. Y.
Merck & Co., Rahway, N. J.
E. M. Sergeant Pulp & Chem. Co., Empire State Bldg., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

AMYL CINNAMIC ALDEHYDE (see AROMATIC CHEMICALS)

AMYL SALICYLATE (see AROMATIC CHEMICALS)

ANISE OIL (see ESSENTIAL OILS)

ANT POISONS

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Fluoride Corp., 151 W. 19th St., N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago

FELTON Quality

AROMATICS

FOR SOAP, DISINFECTANT & INSECTICIDE MANUFACTURERS

- **AROMATIC CHEMICALS** . . . . Manufactured at our Brooklyn factory under accurate chemical control, these aromatic chemicals are of the highest degree of purity, and are always of uniform quality. The following are of special interest to soap makers:

AMYL CINNAMIC ALDEHYDE	EUGENOL	LINALOOL
AMYL BENZOATE	GERANIOLS	LINALYL ACETATE
BENZYLIDENE ACETONE	GERANYL ACETATE	RHODINOL
BORNYL ACETATE	ISO BUTYL BENZOATE	TERPENYL ACETATE
CITRAL	ISO EUGENOL	

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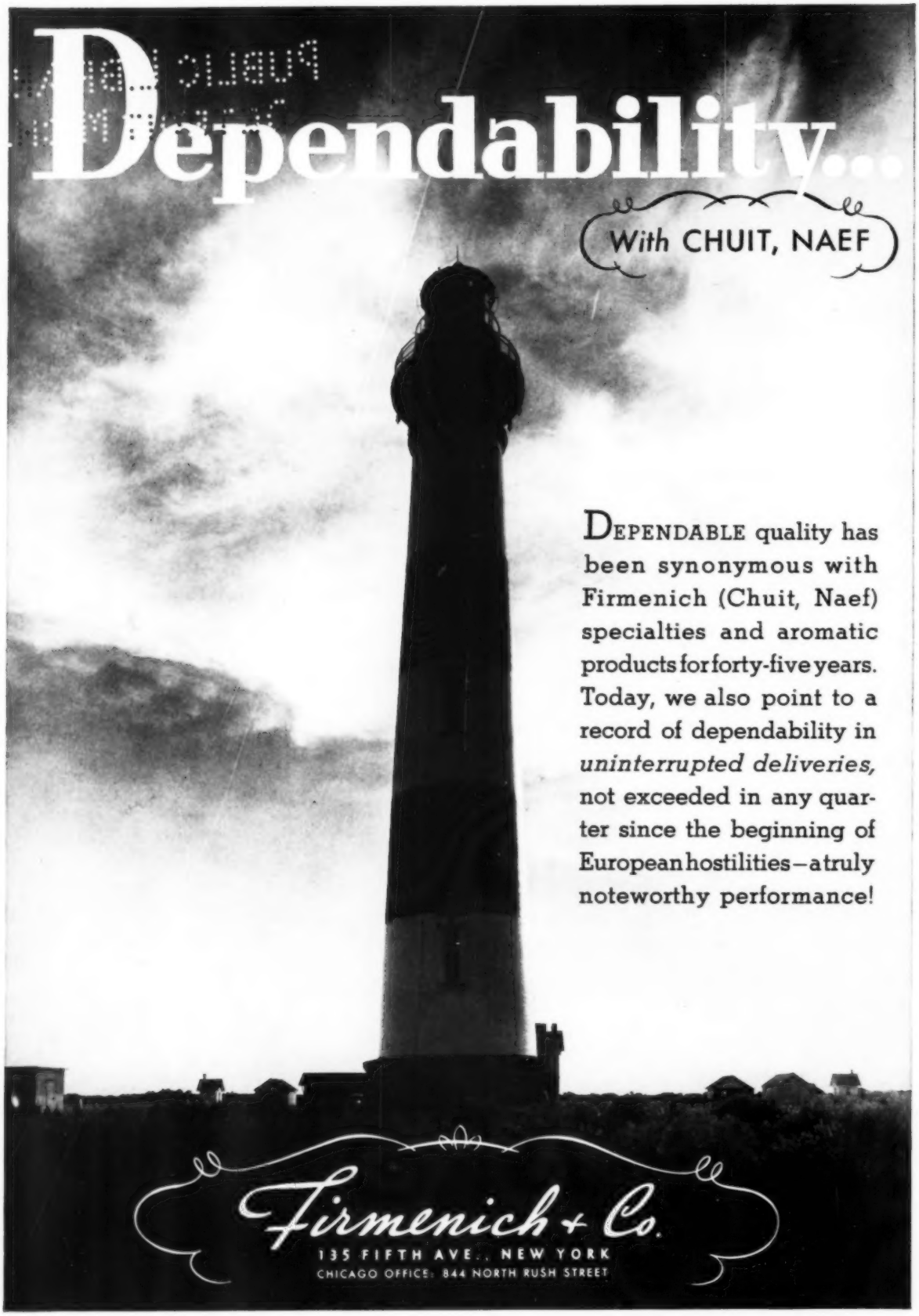
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BLOCK HOLDERS (see HOLDERS, DEODORIZING BLOCK)

BLOWERS for POWDER INSECTICIDES (see BELLOWS)

BLOWERS, ELECTRIC (see SPRAYERS, ELECTRIC)

BLUING (see LAUNDRY BLUE)

BOILER COMPOUNDS

American Colloid Corp., 15 E. 26th St., N. Y.
Ampion Corp., 47-02 5th St., Long Island City, N. Y.
Baum's Castorine Co., Rome, N. Y.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Hercules Chem. Co., 332 Canal St., N. Y.
Higley Chem. Co., Dubuque, Iowa
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Palmer Products Co., Waukesha, Wisc.
Permutit Co., 330 W. 42nd St., N. Y.
Reilly Tar & Chemical Corp., Indianapolis, Ind.
Richards Sales Corp., Jersey City, N. J.
Theo. B. Robertson Prods. Co., 700 Division St., Chicago
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
John Sunshine Chem. Co., 604 W. Lake St., Chicago
Trojan Products & Mfg. Co., 3107 S. Wabash Ave., Chicago
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

BOIS de ROSE OIL (see ESSENTIAL OILS)

BORAX

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Potash & Chem. Corp., 233 Broadway, N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Innis, Speiden & Co., 117 Liberty St., N. Y.
Pacific Coast Borax Co., 51 Madison Ave., N. Y.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

BOTTLES

American Bottle Co., Toledo, O.
Anchor Hocking Glass Corp., Lancaster, Ohio
Capstan Glass Co., Connelsville, Pa.
Graham Glass Co., Evansville, Ind.
Hazel Atlas Glass Co., Wheeling, W. Va.
Kimble Glass Co., Vineland, N. J.
Maryland Glass Corp., Baltimore, Md.
Millville Bottling Wks., Millville, N. J.
Owens Illinois Glass Co., Toledo, O.
F. E. Reed Glass Co., 860 Maple St., Rochester, N. Y.
Root Glass Co., Terre Haute, Ind.
Ruth Glass Co., Conshohocken, Pa.
Tygart Valley Glass Co., Washington, Pa.
T. C. Wheaton Co., Millville, N. J.

BOTTLE FILLING MACHINERY (see FILLING MACHINERY, BOTTLES)

BOTTLE WASHERS (see WASHING MACHINERY, BOTTLES)

BOX LINERS (see BAG LINERS)

BOXES (Corrugated and/or Fibre)

Brooklyn Fibre Syndicate, Decatur St. & Irving Ave., Brooklyn
Cambridge Paper Box Co., 196 Broadway, Cambridge, Mass.
Consolidated Paper Co., Monroe, Mich.
Container Corp. of America, 111 W. Washington St., Chicago
Robert Gair Co., 155 E. 44th St., N. Y.
Hinde & Dauch Paper Co., 222 Decatur St., Sandusky, O.
F. J. Kress Box Co., 2930 Liberty Ave., Pittsburgh
Owens-Illinois Glass Co., Toledo, O.
River Raisin Paper Co., Monroe, Mich.

BOXES (Fancy Paper)

Alderman-Fairchild Co., 367 Orchard St., Rochester, N.Y.
Baxter Paper Co., Brunswick, Maine
F. N. Burt Co., Ltd., 540 Seneca St., Buffalo, N. Y.
C. J. Fox Co., 236 Abron St., Providence, R. I.
Foxon Paper Co., 230 West Park St., Providence, R. I.
Robert Gair Co., 155 E. 44th St., N. Y.
Gardner-Richardson Co., Middletown, O.
R. R. Heywood, Inc., 26th St. & 9th Ave., N. Y.
R. J. Kittredge Co., 812 W. Superior St., Chicago
Pictorial Package Co., Aurora, Ill.
Piqua Paper Box Co., Piqua, O.
Potomac Lithograph Mfg. Co., Washington, D. C.
W. C. Ritchie & Co., 8801 S. Baltimore St., Chicago
Robertson Paper Box Co., Montville, Conn.
Geo. Schmitt & Co., Grand & Florence Sts., Brooklyn
Strobridge Lithographing Co., Norwood Station, Cincinnati
Sutherland Paper Co., Kalamazoo, Mich.
U. S. Printing & Lithographing Co., Norwood, Cincinnati
Universal Folding Box Co., Monroe & 13th Sts., Hoboken, N. J.

BOXES (Fancy Wooden)

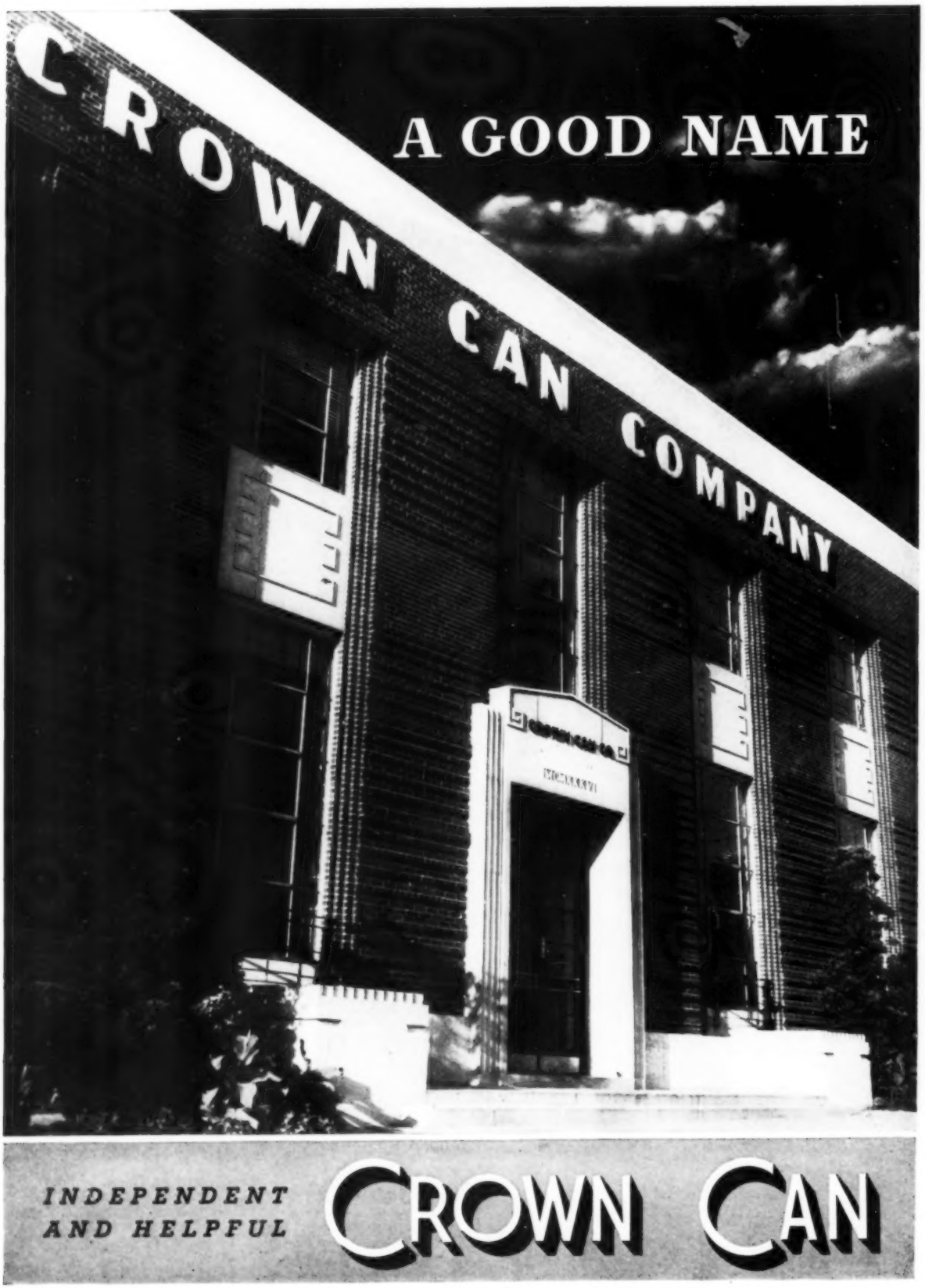
Pilliod Cabinet Co., Swanton, O.

BROKERS (Chemicals)

S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
John A. Chew, Inc., 60 E. 42nd St., N. Y.
Dickerson Co., Drexel Bldg., Phila.
Otto A. C. Hagen Co., Public Ledger Bldg., Phila.
Chas. L. Huisking & Co., 155 Varick St., N. Y.
Leo Pasternak, Inc., 110 William St., N. Y.
George Uhe, Inc., 80 Eighth Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

BROKERS (Oils and Fats)

Irving R. Boody Co., 99 Wall St., N. Y.
Davidson Commission Co., 327 S. La Salle St., Chicago
John W. Hall, 327 S. La Salle St., Chicago
Otto A. C. Hagen Co., Public Ledger Bldg., Phila.
Hentz & Co., 60 Beaver St., N. Y.
Chas., Hollingshead Co., Produce Exchange, N. Y.
Horner Commission Co., 15 William St., N. Y.
E. G. James Co., 316 S. La Salle St., Chicago
Miller & Co., 2401 Chestnut St., Philadelphia
Rayner & Stonington, Inc., 79 Wall St., N. Y.


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CROWN CAN COMPANY
INDEPENDENT
AND HELPFUL
CROWN CAN

M4

BROKERS (Oils and Fats) (Contd.)

J. H. Redding Co., 17 Battery Pl., N. Y.
Roesling, Monroe & Co., 133 Front St., N. Y.
Sterne & Son Co., Board of Trade Bldg., Chicago
Wm. M. Ware & Co., 88 Broad St., Boston
Weaver & Hugi, Inc., Produce Exchange Bldg., N. Y.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
G. A. Wharry & Co., 24 State St., N. Y.
Wilbur-Ellis Co., 17 Battery Pl., N. Y.
Wilson Brokerage, Inc., Produce Exchange, N. Y.

BROOMS

Alabama Broom & Mattress Co., Huntsville, Ala.
Burdett-Rose Mfg. Co., 6100 Independence Rd., Kansas City, Mo.
Chattanooga Broom & Mop Co., Chattanooga, Tenn.
Detroit Quality Brush Mfg. Co., 5937 Michigan Ave., Detroit
Eagle Woodenware Co., Hamilton, O.
Illinois Brush Mfg. Co., 3316 Ogden Ave., Chicago
Kendallville Brush & Broom Co., Kendallville, Ind.
Tate Mfg. Co., 67 Sudbury St., Boston, Mass.
M. J. Toohey & Co., Fall River, Mass.

BRUSHES

American Standard Mfg. Co., 2509 S. Green St., Chicago
Auburn Brush Co., Columbia, Pa.
Burdett-Rose Mfg. Co., 6100 Independence Rd., Kansas City, Mo.
Detroit Quality Brush Mfg. Co., 5937 Michigan Ave., Detroit
Jos. O. Flatt & Co., 141 Cedar St., Reading, Pa.
Flour City Brush Co., 301 Fifth Ave., So., Minneapolis
Higley Chemical Co., Dubuque, Iowa
J. I. Holcomb Co., Indianapolis
Illinois Brush Mfg. Co., 3316 Ogden Ave., Chicago
W. E. Kautenberg Co., P. O. Box 255, Freeport, Ill.
Kendallville Brush & Broom Co., Kendallville, Ind.
National Brush Co., Aurora, Ill.
New Jersey Brush Mfg. Co., Newton, N. J.
Opie Brush Co., Kansas City, Mo.
Ox Fibre Brush Co., Frederick, Md.
Pacific Coast Brush Co., Los Angeles
Palmer Prods., Inc., Waukesha, Wisc.
Pioneer Mfg. Co., Cleveland, O.
Sanitax Brush & Prods. Co., 230 E. Ohio St., Chicago
Silver-Chamberlin Co., Clayton, N. J.
Sullivan Brush Co., Terre Haute ,Ind.
Tate Mfg. Co., 67 Sudbury St., Boston, Mass.

CAJUPUT OIL (see ESSENTIAL OILS)

CALCIUM HYPOCHLORITE

Hooker Electrochemical Co., Niagara Falls, N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

CALCIUM STEARATE (see STEARATES)

CAMPHOR OIL, SASSAFRASSY (see ESSENTIAL OILS)

CAMPHOR OIL, WHITE (see ESSENTIAL OILS)

CAN FILLING MACHINERY (see FILLING MACHINERY, CANS)

CANANGA OIL (see ESSENTIAL OILS)

CANDELILLA WAX (see WAXES)

CAN SPOUTS AND NOZZLES

Anchor Hocking Glass Corp., Lancaster, Ohio
Henry Barroll & Co., Inc., 100 E. 42nd St., N. Y.
George D. Ellis & Sons, 309 N. 3rd St., Phila.
Standard Container Corp., Bloomfield, N. J.
U-Pressit Corp., 420 Lexington Ave., N. Y.
Williams Sealing Corp., Decatur, Ill.

CANS (Fibre or Paper)

American Can Co., 230 Park Ave., N. Y.
Cambridge Paper Box Co., 196 Broadway, Cambridge, Mass.
Canister Co., Phillipsburg, N. J.
Cin-Made Corp., 294 Eggleston Ave., Cincinnati
Cleveland Container Co., 10630 Berea Rd., Cleveland
Continental Can Co., 100 E. 42nd St., N. Y.
Cross Paper Products Co., 2595 Third Ave., N. Y.
Fonda Container Co., 41 Park Row, N. Y.
Gardner-Richardson Co., Middletown, O.
Master Package Corp., Owen, Wis.
Middlesex Paper Tube Co., 342 Madison Ave., N. Y.
Midwest Paper Container Co., 707 N. 3rd St., Minneapolis
National Paper Can Co., Cudahy, Wis.
R. C. Can Co., 121 Chambers St., St. Louis
W. C. Ritchie & Co., 8855 S. Baltimore Ave., Chicago
Sefton Fibre Can Co., 3275 Big Bend Blvd., St. Louis
Sutherland Paper Co., Kalamazoo, Mich.

CANS (Sifter Top)

American Can Co., 230 Park Ave., N. Y.
Anchor Hocking Glass Corp., Lancaster, Ohio
Cambridge Paper Box Co., 196 Broadway, Cambridge, Mass.
Canister Co., Phillipsburg, N. J.
Cans, Inc., 3217 W. 47th Pl., Chicago
Cleveland Container Co., 10630 Berea Rd., Cleveland
Cin-Made Corp., 294 Eggleston Ave., Cincinnati
Continental Can Co., Inc., 100 E. 42nd St., N. Y.
Crown Can Co., Erie Ave. & H St., Phila.
Middlesex Paper Tube Co., 342 Madison Ave., N. Y.
National Can Co., 110 E. 42nd St., N. Y.
Owens-Illinois Can Co., Toledo, O.
R. C. Can Co., 121 Chambers St., St. Louis
Sefton Fibre Can Co., 3275 Big Bend Blvd., St. Louis
Standard Container, Inc., Bloomfield, N. J.
Sutherland Paper Co., Kalamazoo, Mich.

CANS (Steel) (see PAILS, Steel)

CANS (Tin)

American Can Co., 230 Park Ave., N. Y.
Anchor Hocking Glass Corp., Lancaster, Ohio
Central Can Co., 2415 W. 19th St., Chicago
Cans, Inc., 3217 W. 47th Pl., Chicago
J. L. Clark Mfg. Co., Rockford, Ill.
Columbia Can Co., 5221 Natural Bridge Ave., St. Louis
Continental Can Co., Inc., 100 E. 42nd St., N. Y.
Crown Can Co., Erie Ave. & H St., Phila.
George D. Ellis & Sons, 309 N. 3rd St., Phila.
Fein's Tin Can Co., Bush Terminal, Brooklyn
General Can Co., 1603 S. Canal St., Chicago
Heekin Can Co., Cincinnati
National Can Co., 110 E. 42nd St., N. Y.
Owens-Illinois Can Co., Toledo, O.
Phoenix Metal Cap Co., 2444 W. 16th St., Chicago
W. F. Robertson Steel & Iron Co., Springfield, O.
St. Louis Can Co., 904 S. 14th St., St. Louis
Standard Container, Inc., Bloomfield, N. J.

RELY ON DOW

for Caustic Soda

IMPORTANT FACTORS TO GUIDE USERS OF THIS ESSENTIAL PRODUCT

WHAT ARE THE REASONS why users of Caustic Soda place their reliance on Dow? Under present pressing industrial conditions it is important to know, for greater consideration must now be given to certain factors than ever before. It is pertinent therefore to emphasize the following facts:

DEPENDABLE SOURCES

Dow has developed *several* sources for the production of Caustic Soda. Users of this Dow product are not dependent on one source only.

GEOGRAPHICAL LOCATION

Dow sources are geographically located to reduce the distance between production centers and industrial users—always an important factor in the distribution of a highly essential bulk product.

AVAILABILITY

Thus Dow is in a strong position to make Caustic Soda speedily available to industry in all parts of the United States.

EXPERIENCE and FACILITIES

Dow has had long years of experience in producing Caustic Soda and in developing production processes. Each of its plants is completely equipped. Facilities are unsurpassed.

QUALITY

Dow is supplying a substantial portion of the nation's Caustic Soda requirements because the high quality and uniform excellence of its product are thoroughly established. It is dependable.

From every standpoint, you can rely on Dow.

DOW

THE DOW CHEMICAL COMPANY, MIDLAND, MICHIGAN

New York • Chicago • St. Louis • San Francisco • Seattle • Los Angeles • Houston

CAPPING MACHINERY

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Anchor Hocking Glass Corp., Lancaster, Ohio
Consolidated Packaging Machinery Corp., 1400 West Ave., Buffalo
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Crown Cork & Seal Co., Baltimore, Md.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
R. G. Haskins Co., 615 S. California St., Chicago
Karl Kiefer Machine Co., 919 Martin St., Cincinnati, Ohio
Ludcke Co., 41 N. Beacon St., Watertown, Mass.
Phoenix Metal Cap Co., 2444 W. 16th St., Chicago
Pneumatic Scale Corp., North Quincy, Mass.
Scientific Filter Co., 1 Franklin Sq., N. Y.
Triangle Package Machy. Co., 910 N. Spaulding Ave., Chicago

CAPPING MATERIALS

Anchor Hocking Glass Corp., Lancaster, O.
Henry Barroll & Co., Inc., 100 E. 42nd St., N. Y.
Du Pont Cellophane Co., 2 Park Ave., N. Y.
Sylvania Industrial Corp., Chanin Bldg., N. Y.
Williams Sealing Corp., Decatur, Ill.

CAPS (Molded)

Anchor Hocking Glass Corp., Lancaster, Ohio
Armstrong Cork & Insulation Co., Lancaster, Pa.
General Plastics, Inc., N. Tonawanda, N. Y.
Owens-Illinois Glass Co., Toledo, O.
Resinox Corp., Terre Haute, Ind.
Toledo Synthetic Prods. Co., Toledo, O.

CAPS (Metal)

Aluminum Co. of America, Gulf Bldg., Pittsburgh
Anchor Hocking Glass Corp., Lancaster, Ohio
Armstrong Cork & Insulation Co., Lancaster, Pa.
Cans, Inc., 3217 W. 47th Pl., Chicago
Closure Service Co., Toledo, Ohio
Continental Can Co., 100 E. 42nd St., N. Y.
Crown Cork & Seal Co., Eastern Ave. & Kresson St., Baltimore
George D. Ellis & Sons, 309 N. 3rd St., Phila.
Ferdinand Gutmann & Co., 3611 14th Ave., Brooklyn
National Can Co., 110 E. 42nd St., N. Y.
National Seal Co., 14th Ave. & 37th St., Brooklyn
Owens-Illinois Glass Co., Toledo, Ohio
Phoenix Metal Cap Co., 2444 W. 16th St., Chicago
Standard Container, Inc., Bloomfield, N. J.
Williams Sealing Corp., Decatur, Ill.

CARAWAY OIL (see ESSENTIAL OILS)

CARBOLIC ACID, CRUDE (see PHENOL)

CARBON BISULFIDE

(see also Dealers)

Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Merck & Co., Rahway, N. J.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Warner Chemical Co., 405 Lexington Ave., N. Y.

CARBON TETRACHLORIDE

(see also Dealers)

J. T. Baker Chemical Co., Phillipsburg, N. J.
Brown Co., Portland, Me.
Diamond Alkali Corp., 535 Smithfield St., Pittsburgh
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Merck & Co., Rahway, N. J.
Niagara Smelting Corp., Niagara Falls, N. Y.
Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Phila.
Stauffer Chem. Co., 420 Lexington Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Warner Chemical Co., 405 Lexington Ave., N. Y

CARNAUBA WAX (see WAXES)

CARTON HANDLING SYSTEMS

J. L. Ferguson Co., Joliet, Ill.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Self-Lifting Piano Truck Co., Findlay, Ohio
Stephans-Adamson Mfg. Co., Aurora, Ill.
Weigh Right Automatic Scale Co., Joliet, Ill.

CARTON LINING MACHINES (see LINING MACHINERY)

CARTON SEALING MACHINERY (see SEALING MACHINERY)

CARTONING MACHINERY

Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N.Y. (Used)
J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Johnson Automatic Sealer Co., Battle Creek, Mich.
R. A. Jones & Co., Cincinnati, O.
Pneumatic Scale Corp., North Quincy, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago.
Stokes & Smith Co., 4915 Summerdale Ave., Phila, Pa.
Triangle Package Machinery Co, 906 N. Spaulding Ave., Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

CARTONS (Display and Knock Down)

Alderman-Fairchild Co., Rochester, N. Y.
F. N. Burt Co., 540 Seneca St., Buffalo, N. Y
Consolidated Paper Co, Monroe, Mich.
Robert Gair Co., 155 E. 44th St., N. Y.
Gardner-Richardson Co., Middletown, O.
Nevins-Church Co., 250 Park Ave., N. Y.
New England Card & Paper Co., Springfield, Mass.
Pictorial Package Co., Aurora, Ill.
Randolph Box & Label Co., 843 W. VanBuren St., Chicago
W. C. Ritchie & Co., 8855 S. Baltimore Ave., Chicago
Robertson Paper Box Co., Inc., Montville, Conn.
George Schmitt & Co., Grand & Florence Sts., Brooklyn
Sutherland Paper Co., Kalamazoo, Mich.
U. S. Printing & Lithographing Co., Cincinnati, O.
Universal Folding Box Co., Monroe & 13th Sts., Hoboken, N. J.

CASE SEALING MACHINERY (see SEALING MACHINERY)

CASEIN

American-British Chem. Supplies, Inc., 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Casein Co. of America, Div. of The Borden Co., 350 Madison Ave., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.



COLUMBIA PRODUCTS
FOR GOOD SOAP-MAKING

You can count on Columbia Soda Ash and Caustic Soda to do their jobs supremely well. Because they are made and safeguarded during shipment with one single aim—to deliver these important products in the most economically usable form to make your processing run more smoothly—and to do their full share in making your products worthy in every respect to bear your own good name.

CAUSTIC SODA
76% Flake—50% and 73% Liquid

Columbia Caustic Soda is especially desirable for soap-making because of its high purity and freedom from metallic contamination.

The 76% Flake product is available in 400-lb. drums. The 50% and 73% Liquid grades are shipped in tank cars of notably improved design which effectively prevent crystallization. The exclusive Columbia protective coating used on these cars prevents metallic contamination en route.

SODA ASH
Light—Dense—Feather

Prepared to rigid specifications which have been developed through forty years' experience in meeting the requirements of the Soap Industry.

Our Technical Service Department will gladly cooperate in developing the most advantageous use of these or other Columbia products in your processes.

PITTSBURGH PLATE GLASS COMPANY
Columbia Chemical Division

COLUMBIA

30 ROCKEFELLER PLAZA, NEW YORK, N. Y.

CHICAGO • BOSTON • ST. LOUIS
PITTSBURGH • CINCINNATI • CLEVELAND
MINNEAPOLIS • PHILADELPHIA

CASEIN (Contd.)

Jungmann & Co., 74 Trinity Pl., N. Y.
Land-o-Lakes Creameries, Minneapolis
National Casein Co, 603 W. 80th St., Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

CASES (Fibre) (see BOXES, CANS)

CASES (Corrugated) (see BOXES)

CASSIA OIL (see ESSENTIAL OILS)

CASTILE SOAP, BAR

Armour Soap Wks., 1355 W. 31st St., Chicago
Conti Products Corp., 155 Varick St., N. Y.
Haskins Bros. & Co., Omaha
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Kranich Soap Co., 54 Richards St., Brooklyn
Lockwood-Brackett Co., Waltham Station, Boston
Los Angeles Soap Co., Los Angeles, Calif.
Newell Gutradt Co., 350 Fremont St.. San Francisco
Peck's Prods. Co., 5238 N. 2nd St., St. Louis
Procter & Gamble Co., Ivorydale, O.
Geo. W. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Bklyn.
Allen B Wrisley Co., 6801 W. 65th St., Chicago

CASTILE SOAP, LIQUID

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Baums Castorine Co., 200 Matthew St.. Rome, N. Y.
Chicago Sanitary Prods Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., Kensington, Phila.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Higley Chem. Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Kranich Soap Co., 54 Richards St., Brooklyn
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Moore Bros. Co., 67 Vestry St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wisc.
Peck's Prods. Co., 5238 N. 2nd St., St. Louis
Geo. A. Schmidt Co., 236 W North Ave, Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Superior Soap Corp., 121 Nostrand Ave., Bklyn.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Allen B. Wrisley Co., 6801 W 65th St., Chicago

CASTOR OIL

(see also Dealers)

Archer-Daniels-Midland Co., Minneapolis
Baker Castor Oil Co., 120 Broadway, N. Y.
Balfour, Guthrie & Co., 67 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Otto A. C. Hagen Co., 929 Public Ledger Bldg., Phila.
Spencer Kellogg & Sons, Buffalo, N. Y.
National Oil Products Co., Harrison, N. J.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
J. H. Redding, Inc., 17 Battery Place, N. Y.
Richards Sales Corp., Warren & Morris Sts., Jersey City, N. J.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

CATTLE DIPS AND SPRAYS

(see also Sheep Dips)

An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal.
Ampion Corp., 47-02 5th St., Long Island City, N. Y.
Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
Baird & McGuire, Holbrook, Mass.
Baird & McGuire, Inc., of Mo., St. Louis
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
California Spray-Chemical Corp., Richmond, Calif.
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 2526 W. Congress St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Delta Chem. Co., 4 Payson Ave., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Goulard & Olena, 140 Liberty St., N. Y.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Higley Chem. Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Hunt Mfg. Co., Lisbon Rd., Cleveland
William E. Jordan & Bros., 2590 Atlantic Ave., Brooklyn
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Koppers Co, Koppers Bldg., Pittsburgh, Pa.
McLaughlin. Gormley King Co., Minneapolis, Minn.
National Oil Prods. Co., Harrison, N. J.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prod. Co., 522-40 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St., St. Louis
Shores Co., Cedar Rapids, Ia.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ohio), Midland Bldg.. Cleveland
Thompson-Hayward Chem. Co., 2915 Southwest Blvd., Kansas City, Mo.
Tobacco By-Products & Chem. Corp., Louisville, Ky.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Velsicol Corp., 120 E. Pearson St., Chicago
Victory Chem. Co., 148 Fairmont Ave., Phila.
Robert C. White Co., Falls of Schuylkill, Phila.
White Tar Co., Kearny, N. J.

CATTLE SPRAY BASE (see PETROLEUM BASES)

CAUSTIC POTASH (see POTASH, CAUSTIC)

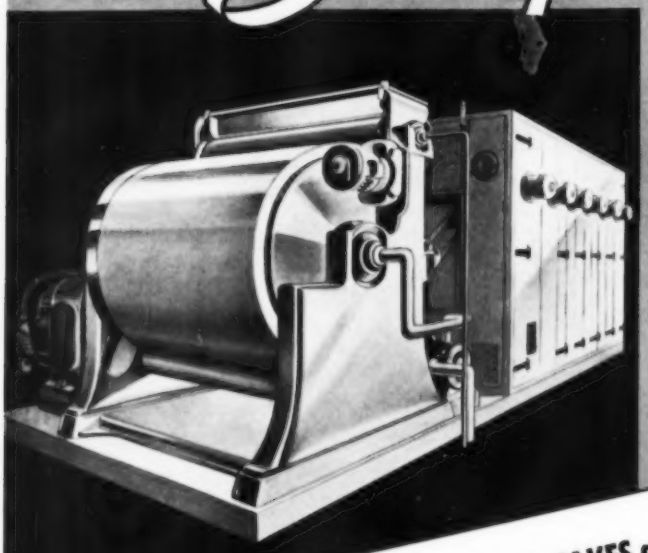
CAUSTIC SODA

(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Belle Alkali Co., Belle, W. Va.
Brown Company, Portland, Me.
Champion Fibre Co., Canton, N. C.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Great Western Electrochemical Co., San Francisco
Hooker Electrochemical Co., Niagara Falls, N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Kimberley-Clark Paper Co., Neenah, Wis.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Michigan Alkali Co., Ford Bldg., Detroit
Michigan Electrochemical Co., Menominee, Mich.
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Niagara Smelting Corp., Niagara Falls, N. Y.
Oxford Paper Co., White Mountains, N. H.
Pennsylvania Salt Mfg. Co., Widener Bldg.. Phila.
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Welch, Holme & Clark, 563 Greenwich St., N. Y.

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CEDARWOOD OIL (see ESSENTIAL OILS)

CERESIN WAX (see WAXES)

CHALK (Calcium Carbonate)

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Binney & Smith Co., 41 E. 42nd St., N. Y.
Charles B. Chrystal Co., 16 Hudson St., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. Du Pont de Nemours & Co., Wilmington, Del.
A. C. Drury & Co., 219 East North Water St., Chicago
Fezandie & Sperrle, 205 Fulton St., N. Y.
E. Fougera & Co., 41 Maiden Lane, N. Y.
Goris & Arnstein, 37th & Racine Ave., Chicago
K. F. Griffiths Co., 110 E. 42nd St., N. Y.
Hammill & Gillespie, 225 Broadway, N. Y.
Charles Hardy, Inc., 415 Lexington Ave., N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Innis Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
James H. Rhodes & Co., 157 W. Hubbard St., Chicago
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Tamms Silica Co, 228 N. LaSalle St., Chicago
Charles A. Wagner Co., 809 Callowhill St., Phila.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

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Amer. Sponge & Chamois Co., 47 Ann St., N. Y.
Atlas Sponge Co., 291 Church St., N. Y.
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E. I. Du Pont de Nemours & Co., Wilmington, Del.
Great Eastern Sponge & Chamois Co., 833 N. Patt. Pk. Ave., Baltimore
Jos. Niehaus Co., 341 W. 4th St., Cincinnati
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CHEMISTS, CONSULTING, See CONSULTANTS, See LABORATORIES, TESTING

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Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
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Innis, Speiden & Co, 117 Liberty St., N. Y.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Michigan Alkali Co., Ford Bldg., Detroit
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Pennsylvania Salt Mfg. Co., Widener Bldg., Phila.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
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(see also Bleaching Earths)

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Banner Chem. Prods. Co., 329 Mulberry St., Newark, N. J.
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Cenol Co., 4250 N. Pulaski Ave., Chicago
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Clifton Chemical Co., 247 Front St., N. Y.
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Hull Co., 305 Washington St., Brooklyn
Hysan Prods. Co., 58 E. Cullerton St., Chicago
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Palmer Products, Inc., Waukesha, Wisc.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
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Richard's Sales Corp., Warren & Morris Sts., Jersey City, N. J.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Sanitary Prods. Co., 874 Seward St., Rochester, N. Y.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
Thompson-Hayward Chem. Co., 2915 Southwest Blvd., Kansas City, Mo.
Trojan Prods. & Mfg. Co., 3107 S. Wabash Ave., Chicago
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Uncle Sam Chemical Co., 329 E. 29th St., New York City
U. S. Sanitary Spec. Corp., 435 So Western Ave, Chicago
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Wilco Co., 6800 McKinley Ave., Los Angeles

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Barton Chemical Co., 3907 S. Langley Ave., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Beach Soap Co., Lawrence, Mass.
Blockson Chemical Co., Joliet, Ill.
California Industrial Minerals Co., Friant, Calif.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chem. Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., L. I. City, N. Y.
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Crystal Labs., Inc., 21 W. Park Way, N. E., Pittsburgh
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Delta Chemical Co., 4 Payson Ave., N. Y.
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Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila
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Hockwald Chem. Co., 30 Bluxome St., San Francisco
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Nat'l Milling & Chem. Co., Manayunk, Phila.
National Oil Products. Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
North Coast Soap & Chem. Wks., Seattle, Wash.
Pacific Chem. Co., 1421 N. Main St., Los Angeles
Palmer Products, Inc., Waukesha, Wisc.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Philadelphia Quartz Co., 125 S. 3rd St., Phila.
Port Huron Detergent Co., Port Huron, Mich.
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Richards Chem. Wks., Warren & Morris Sts., Jersey City, N. J.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Solshine Mfg. Co., 44 Brookline St., Boston
Solvay Sales Corp., 40 Rector St., N. Y.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
S. & S. Soap Co., 324 Barretto St., Bronx, N. Y.
Stevens Soap Corp., 200 Sullivan St., Brooklyn
John Sunshine Chem. Co., 604 W. Lake St., Chicago
Thompson-Hayward Chem. Co., 2915 Southwest Blvd., Kansas City, Mo.
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
United Cleanser Mfg. Co., Cambridge, Mass.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
York Chemical Co., 424 W. 18th St., N. Y.

CLEANING FLUIDS (Spotting Fluids)

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
An-fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Armour & Co., 1355 W. 31st St., Chicago
Atlantic Refining Co., 260 South Broad St., Phila.
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chem. Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., Long Island City, N. Y.
Delta Chemical Co., 4 Payson Ave., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Wilmington
Elkay Products Corp., 323 W. 16th St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 Susquehanna Ave., Phila.
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
James Huggins & Son, Malden, Mass.
Hull Co., 305 Washington St., Brooklyn
Hysan Prods. Co., 58 E. Cullerton St., Chicago
La Maison Prods. Inc., So. York St., Brooklyn, N. Y.
McKesson & Robbins, Bridgeport, Conn.
Merck & Co., Rahway, N. J.
Midway Chemical Co., 5235 W. 65th St., Chicago
Moore Bros. Co., 67 Vestry St., N. Y.
Palmer Products, Inc., Waukesha, Wisc.
Pennsylvania Refining Co., Butler, Pa.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
R. R. Street & Co., 561 W. Monroe St., Chicago
Trojan Prods. & Mfg. Co., 3107 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
White Tar Co. of N. Y., Kearny, N. J.
Wilco Co., 6800 McKinley Ave., Chicago

CLIPS (for Collapsible Tubes) (see also TUBES, COLLAPSIBLE)

Acme Clip & Mfg. Co., 426 S. Clinton St., Chicago
Arthur Colton Co., Detroit
George G. Rodgers Co., 183 Varick St., N. Y.
Standard Spec. & Tube Co., New Brighton, Pa.

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Anchor Hocking Glass Corp., Lancaster, O.
Henry Barroll & Co., Inc., 100 E. 42nd St., N. Y.
Closure Service Co., Toledo, O.

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Phoenix Metal Cap Co., 2444 W. 16th St., Chicago
Williams Sealing Corp., Decatur, Ill.

CLOVE OIL (see ESSENTIAL OILS)

COAL TAR DISINFECTANTS (see DISINFECTANTS)

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American-British Chem. Supplies, 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
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Barrett Co., 40 Rector St., N. Y.
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Commerce Petroleum Co., 3042 Archer Ave., Chicago
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Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Neville Co., Pittsburgh, Pa.
Pittsburgh Coal Carbonization Co., Oliver Bldg., Pittsburgh
Reilly Tar & Chemical Co., Indianapolis
Standard Naphthalene Prods. Co., S. Kearney, N. J.
White Tar Co., Kearny, N. J.

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Walter Baker & Co., 601 W. 26th St., N. Y.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Spencer Kellogg & Sons, Buffalo, N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
A N. Stollwerck Co., Camden, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

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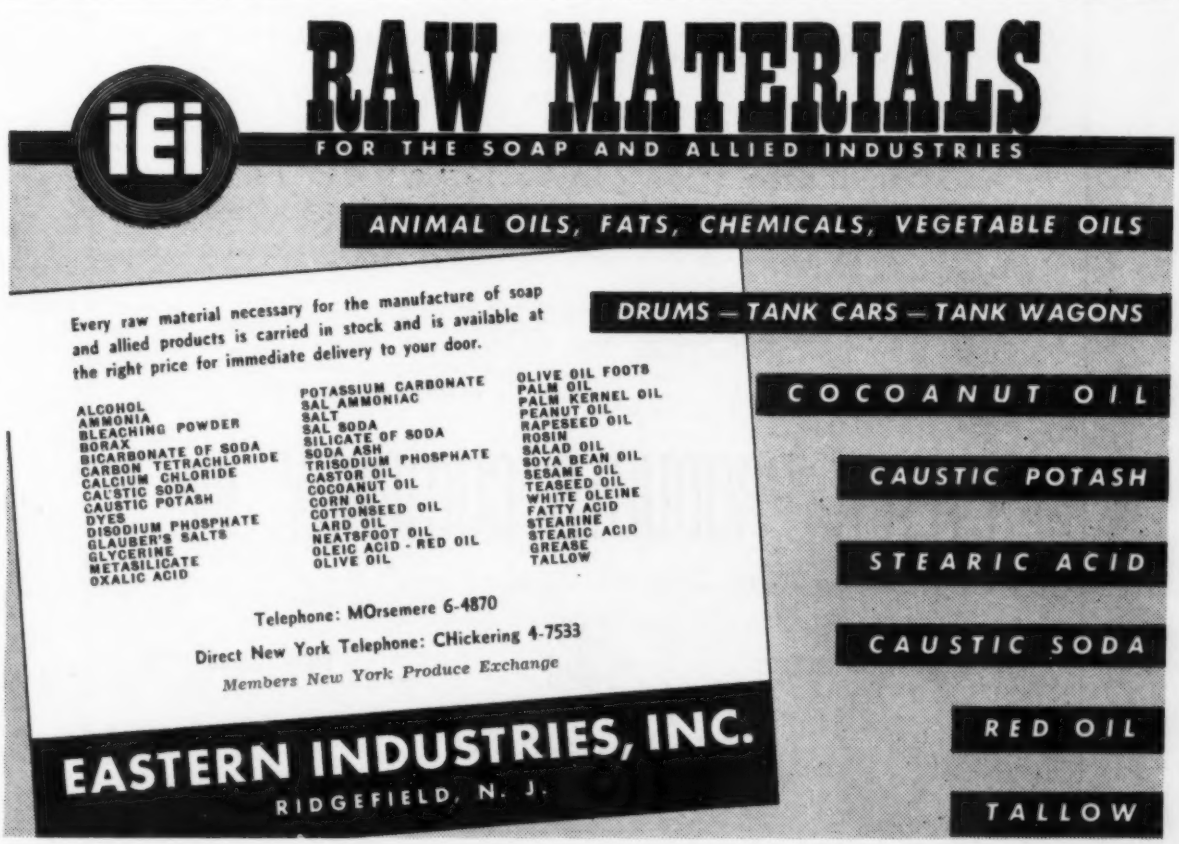
(see also Brokers and Dealers)

Atkins, Kroll & Co., 250 California St., San Francisco
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Best Foods, Inc., 88 Lexington Ave., N. Y.
Capital City Products Co., Columbus, O.
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Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
El Dorado Oil Wks., 230 California St., San Francisco
Franklin Baker Co., 1500 Bloomfield St., Hoboken, N. J.
Spencer Kellogg & Sons, Buffalo, N. Y.
Los Angeles Soap Co., Los Angeles, Calif.
Pacific Veg. Oil Corp., 62 Townsend St., San Francisco
Procter & Gamble Co., Cincinnati
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H. H. Rosenthal Co., 25 E. 26th St., N. Y.
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Globe Collapsible Tube Corp., 28 Columbia Heights, Brooklyn, N. Y.
Hygienic Tube Co., 34 Ave. L., Newark, N. J. (Celluloid)
National Collapsible Tube Co., Providence, R. I.
New England Collapsible Tube Co., New London, Conn.
Peerless Tube Co., Bloomfield, N. J.
Sun Tube Corp., Hillside, N. J.
Victor Metal Products Corp., Brooklyn, N. Y.
White Metal Mfg. Co., 1012 Grand St., Hoboken, N. J.
A. H. Wirz, Inc., Chester, Pa.

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Abbe Engineering Co., 50 Church St., N. Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Colloid Equip. Co., 50 Church St., N. Y.
Consolidated Products Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Manton-Gaulin Mfg., 19 Charlton St., Everett, Mass.
Pfaudler Co., Rochester, N. Y.
Milton F. Robie, 30 Pittsburgh St., Boston
U. S. Colloid Mill Corp., 24-16 Bridge Plaza, S., L. I. City

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Calco Chem. Division of American Cyanamid Co., Bound Brook, N. J.
Fezandie & Sperrle, 205 Fulton St., New York
Interstate Color Co., 5 Beekman St., New York
H. Kohnstamm & Co., 91 Park Place, New York
National Aniline & Chem. Corp., 40 Rector St., N. Y.
Pylam Products Co., 799 Greenwich St., New York

COLORS (see also ESSENTIAL OILS)

American Aniline Prod., Inc., 50 Union Sq., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Stanley Doggett, Inc., 75 Varick St., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Dyestuffs & Chemical, Inc., 11th & Monroe Sts., St. Louis
Fezandie & Sperrle, 205 Fulton St., N. Y.
Geigy Co., 89 Barclay St., N. Y.
General Dyestuffs Corp., 435 Hudson St., N. Y.
Interstate Color Co., 5 Beekman St., N. Y.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Leeben Chem. Co., 389 Washington St., N. Y.
National Aniline & Chem. Corp., 40 Rector St., N. Y.
Tamms Silica Co., 228 N. La Salle St., Chicago
Pylam Products Co., 799 Greenwich St., N. Y.
R. F. Revson Co., 144 W. 18th St., N. Y.
Sandoz Chem Wks., 61 Van Dam St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y. (export)

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Crowell Mfg. Co., 177 Clifton Pl., Brooklyn
De Vilbiss Co., Toledo, O.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Fairbanks-Morse & Co., 80 Broad St., N. Y.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Foster Pump Works, 51 Washington St., Brooklyn
Fumeral Co., Racine, Wisc.
Ingersoll-Rand Co., 11 Broadway, N. Y.
Nash Engineering Co., South Norwalk, Conn.
Worthington Pump & Machinery Corp., 2 Park Ave., N. Y.

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Applied Research Laboratories, Dayton, N. J.
Columbus Labs., 33 N. State St., Chicago
Curtis & Tompkins, Ltd., 236 Front St., San Francisco, Calif.
Dairy Laboratories, 2300 Locust St., Phila.
Entomological Testing Labs., 114 E. 32nd St., N. Y.
Wm. Garrigue & Co., 9 S. Clinton St., Chicago
Lloyd A. Hall, 1415 W. 37th St., Chicago
Hochstadter Laboratories, Inc., 254 W. 31st St., N. Y.
Illinois Chemical Labs., Gridley, Ill.
La Wall & Harrison, 214 S. 12th St., Phila.
Lederer Bacteriological Labs., 269 S. 19th St., Phila.
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Pease Laboratories, 39 W. 38th St., N. Y.
W. S. Purdy Co., 128 Water St., N. Y.
Samuel P. Sadtler & Son, 210 S. 13th St., Phila.
Seil, Putt & Rusby, 16 E. 34th St., N. Y.
Skinner & Sherman, 246 Stuart St., Boston
Foster D. Snell, 305 Washington St., Brooklyn
Stillwell & Gladding, 130 Cedar St., N. Y.
Taub Labs., 115 W. 68th St., N. Y.
Wurster & Sanger, 5201 Kenwood Ave., Chicago

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H. W. Caldwell & Son Co., 2410 W. 18th St., Chicago
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
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Filter Paper Co., 57 E. 24th St., Chicago
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B. F. Gump Co., 431 S. Clinton St., Chicago
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Houchin Machinery Co., Hawthorne, N. J.
Jeffrey Mfg. Co., 924 N. 4th St., Columbus, O.
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Lancaster Iron Works, Lancaster, Pa.
Link-Belt Co., 910 S. Michigan, Chicago
Pneumatic Scale Corp., North Quincy, Mass.
Read Machy. Co., York, Pa.
George G. Rodgers Co., 183 Varick St., N. Y.
Sprout Waldron & Co., Muncy, Pa.
Standard Conveyor Co., N. St. Paul, Minn.
Stephens-Adamson Mfg. Co., Aurora, Ill.
Sterns Conveyor Co., Cleveland
F. J. Stokes Machine Co., Tabor Rd., Phila., Pa.
Triangle Package Machy. Co., 906 N. Spaulding Ave., Chicago.
Weigh Right Automatic Scale Co., 404 Grant Ave., Joliet, Ill.

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Nuodex Prods. Co., 312 Division St., Elizabeth, N. J.

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Harshaw Chemical Co, 1945 E. 97th St., Cleveland
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Raritan Copper Wks., Perth Amboy, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E M. Sergeant Pulp & Chem. Co., 350—5th Ave, N Y.
Tennessee Copper Co., 61 Broadway, N. Y.

CORKING MACHINERY

Edward Ermold Co., 652 Hudson St., N. Y.
Horix Mfg. Co., Pittsburgh
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Pneumatic Scale Corp., North Quincy, Mass.

CORKS

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Cork Import Corp., 330 W. 42nd St., N. Y.
Dodge Cork Co., Lancaster, Pa.

CORN OIL

(see also Brokers and Dealers)

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Spencer Kellogg & Sons., Buffalo, N. Y.
National Starch Products, 820 Greenwich St., N. Y.
J. H. Redding Co., 17 Battery Pl, N. Y.
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Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Woolner & Co., Peoria, Ill.

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Richard Gesell, Inc., 200 W. Houston St., N. Y.
Luxor, Ltd., 1355 W. 31st St., Chicago
National Oil Prods. Co., Harrison, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Julius Schmid, Inc., 423 W. 55th St., N. Y.
Shores Co., Cedar Rapids, Ia.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

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(see also Brokers and Dealers)

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T. G. Cooper & Co., 47 N. 2nd St., Phila.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Spencer Kellogg & Sons, Buffalo, N. Y.
Portsmouth Cotton Oil Refining Co., Portsmouth, Va.
Procter & Gamble Co., Cincinnati, O.
J. H. Redding, Inc., 17 Battery Place, N. Y.
E. M Sergeant Pulp & Chem Co., Empire State Bldg., N. Y.
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wilson-Martin Co., Swanson St., Phila.
Woburn Degreasing Co., 1200 Harrison Ave., Harrison, N. J.

COTTONSEED OIL

(see also Brokers and Dealers)

Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila.
Spencer & Kellogg & Sons, Buffalo, N. Y.
Los Angeles Soap Co., Los Angeles, Calif.
Portsmouth Cotton Oil Refining Corp., Portsmouth, Va.
Procter & Gamble Co., Cincinnati, O.
J. H. Redding Co., 17 Battery Pl., N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
C. F. Simonin's Sons, Phila.
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

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(see also Aromatic Chemicals)

Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I Du Pont de Nemours & Co., Wilmington, Del.
General Drug Co., 644 Pacific St., Bklyn.
Givaudan-Delawanna, 330 W. 42nd St., N. Y.
Maywood Chem. Wks., Maywood, N. J.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis

CREOSOTE OIL (see COAL TAR RAW MATERIALS)

CRESOL COMPOUND, U.S.P. and Technical (see DISINFECTANTS, COAL TAR)

CRESOLS (see COAL TAR RAW MATERIALS)

CRESYLIC ACID (see COAL TAR RAW MATERIALS)

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Shell Oil Co., 50 W. 50th St., N. Y.
Standard Oil Co. of Calif., San Francisco

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Huber Machine Co., 259—46th St., Brooklyn
Littleford Bros., 443 E. Pearl St., Cincinnati
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago
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Sowers, Mfg. Co., 1296 Niagara St., Buffalo, N. Y.
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S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
Frank B. Ross Co., 79 Wall St., N. Y.
U. S. Industrial Chemicals, Inc., 60 E. 42nd St., N. Y. (derris)
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CUTTING TABLES (see SOAP MACHINERY)

CYANIDES (see FUMIGANTS) (see SODIUM CYANIDE)

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Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.

DEALERS (Chemicals)

Akron Chem. Co., 1025 Sweitzer Ave., Akron, Ohio
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American-British Chem. Supplies, 180 Madison Ave., N.Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Oil & Supply Co., 236 Wilson Ave., Newark, N. J.
Baker & Gaffney, Drexel Bldg., Philadelphia
H. J. Baker & Bro., 271 Madison Ave., N. Y.
Barada & Page, Kansas City, Mo.
S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
Benner Chemical Co., 20 N. Wacker St., Chicago
Braun-Knecht-Heimann Co., 584 Mission St., San Francisco
Buckeye Soda Products Co., 32 Main St., Cincinnati
Calo & Lydon, 19 Rector St., N. Y.
John A. Chew, Inc., 60 E. 42nd St., N. Y.
Alan A. Claflin, 88 Broad St., Boston
Consumers Chemical Co., Drexel Bldg., Philadelphia
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Dickerson Co., Drexel Bldg., Phila.
Doe & Ingalls, 56 Garden St., Boston
A. C. Drury & Co., 219 E. North Water St., Chicago
Eastern Industries, Ridgefield, N. J.
Eaton Clark Co., 1490 Franklin St., Detroit
F. P. L. Chemical Co., 647 West Virginia St., Milwaukee
Faesy & Besthoff, 22 E. 40th St., N. Y.
Alex C. Fergusson Co., Drexel Bldg., Phila.
Fort Pitt Chemical Co., 3134 Penn Ave., Pittsburgh
General Drug Co., 170 Varick St., N. Y.
Globe Chemical Co., Murray Road, Cincinnati
Griffin Chem. Co., 1000 16th St., San Francisco
Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila.
C. P. Hall Co., Akron, Ohio
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Herbert Chem. Co., Vine & Murray Rd., Cincinnati
Arnold Hoffman & Co., 55 Canal St., Providence, R. I.
Howe & French, 99 Broad St., Boston
Hummel Chemical Co., 90 West St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Wm. E. Jordan & Bro., Inc., 2590 Atlantic Ave., Brooklyn
Jungmann & Co., 74 Trinity Pl., N. Y.
E. & F. King & Co., 405 Atlantic Ave., Boston
Los Angeles Chem. Co., 2200 Santa Fe Ave., Los Angeles
John F. Maher & Co., 1600 Henderson St., Houston, Tex.
George Mann & Co., 251 Fox Point Blvd., Providence, R. I.
Merchants Chemical Co., 60 East 40th St., N. Y.
Millard-Heath Co., 14 Pine St., St. Louis
Clarence Morgan & Co., 355 W. Ontario St., Chicago
Mulcahy & Griffin, 141 Milk St., Boston
National Oil & Supply Co., 172 Frelinghuysen Ave., Newark, N. J.
National Sales Co., 31 E. 13th St., Cincinnati
Wm. D. Neuberg Co., 420 Lexington Ave., N. Y.
Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago
Newman Tallow & Soap Machinery Co., 1051 W. 35th St., Chicago
Paper Makers Chemical Div., Hercules Powder Co., Wilmington, Del.
R. Peltz Co., 112 S. 16th St., Philadelphia
Pfaltz & Bauer, Inc., 350 5th Ave., N. Y.
H. B. Prior Co., 420 Lexington Ave., N. Y.
Providence Textile Chem. Co., 2 Randall St., Providence, R. I.
R. F. Revson Co., 144 W. 18th St., N. Y.
James H. Rhodes & Co., 153 W. Hubbard St., Chicago
G. S. Robins & Co., 310 S. Commercial St., St. Louis
Rodgers Chemical Co., Fitzsimmons Bldg., Pittsburgh
Rogers & McClellan, 143 Milk St., Boston
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E. M. Sergeant Pulp & Chemical Co., 350—5th Ave., N. Y.
H. J. Rolis Chemical Co., Buffalo, N. Y.
George Senn, Philadelphia Bourse, Phila.
Sessions-Gifford Co., 255 Allens Ave., Providence, R. I.
Irving M. Sobin Co., 72-74 Granite St., Boston
J. U. Starkweather Co., Providence, R. I.
Thompson-Hayward Chem. Co., 2915 Southwestern Blvd., Kansas City.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago, Ill.
Jos. Turner & Co., 630—5th Ave., N. Y.
Chas. A. Wagner Co., 809 Callowhill St., Phila.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

DEALERS (Oils and Fats)

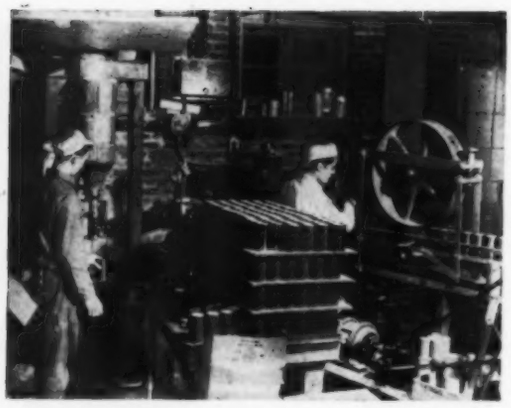
Balfour, Guthrie & Co., 67 Wall St., N. Y.
Calo & Lydon, 19 Rector St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Eastern Industries, Ridgefield, N. J.
E. H. Frey Co., 2 Broadway, N. Y.
Alex Fergusson Co., Drexel Bldg., Philadelphia
Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila.
A. W. Harris Oil Co., Providence, R. I.
J. H. Hinz Co., 825 Engineers Bldg., Cleveland
Innes & Co., 533 Canal St., N. Y.
E. G. James Co., 332 So. La Salle St., Chicago
Miller & Co., 2401 Chestnut St., Philadelphia
Clarence Morgan & Co., 919 N. Michigan, Chicago
Murray Oil Products Co., 21 West St., N. Y.
Newman Tallow & Soap Machinery Co., 1051 W. 35th St., Chicago
Rayner & Stonington, 79 Wall St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Willibald Schaefer Co., Foot of Boemen Ave., St. Louis
George Senn, Philadelphia Bourse, Phila.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Swan-Finch Oil Corp., 30 Rockefeller Plaza, N. Y.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Tunley & Co., 31 Water St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

DECOLORIZING CARBONS

American Active Carbon Co., Columbus, O.
Atlas Powder Co., Wilmington, Del.
Cliffs-Dow Chem. Co., Marquette, Mich.
Darco Sales Corp., 60 E. 42nd St., N. Y.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
L. A. Salomon & Bros., 216 Pearl St., N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

FULD MAKES IT FOR THE LEADERS

The Plants Behind The Products



DRAIN CLEANER FILLING—After the powder mixing machine completes the mixture, the material is fed into these automatic machines for accurate filling by weight. The cans are then automatically capped; following which they are then packed in cartons ready for shipment.

OUR NEW JERSEY PLANT—This picture shows one of the most important steps in the process of making deodorant block holders and drip machines—namely, inspection. At this point every rivet is carefully checked to make certain that it is in securely—an assurance that you get products in perfect working order.

SLIP TESTING—Our waxes are known not only for their high lustre and good wear, but also for their slip-resisting properties. This is just another of the many important tests made on waxes in our laboratories. The illustration below shows a technician testing the slip of the self-polishing wax on apparatus developed right in our laboratory. This machine is built upon the "thrust" principle, and measures the coefficient of friction of the wax.





THE PRODUCTS WE MANUFACTURE

DEODORANT BLOCKS • LIQUID CLEANERS INSECTICIDES • WAXES • LIQUID, OIL AND BASE SOAPS • DISINFECTANTS • POLISHES • PLUMBING SPECIALTIES • FLOOR SEALS AND TREATMENTS • SPECIAL CLEANERS • BOILER COMPOUNDS • LIQUID DEODORANTS • CLEANING COMPOUNDS • SOAP DISPENSERS • DEODORANT BLOCK HOLDERS.

DEODORANT BLOCK MACHINE—(in rear) presses blocks at 80 ton pressure. They then pass on to the block-wrapping machine which wraps small sized blocks automatically with heat-sealed, moisture-proof cellophane. This insures non-leakage.



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SALES OFFICES: Kansas City, Seattle, Boston, San Francisco

We Sell JOBBERS Only

DEODORIZED KEROSENE (see PETROLEUM)

DEGRAS (see WOOL GREASE)

DEODORIZING BLOCK COLORS (see COLORS)

DEODORIZING BLOCK DIES (see SOAP DIES)

DEODORIZING BLOCK HOLDERS (see HOLDERS, DEODORIZING BLOCKS)

DEODORIZING BLOCK PERFUMES (see PERFUMING COMPOUNDS)

DEODORIZING BLOCK PRESSES (see PRESSES)

DEODORIZING AND BLEACHING EQUIPMENT (For Oils)

Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Foster-Wheeler Co., 165 Broadway, N. Y.
William Garrigue & Co., 9 S. Clinton St., Chicago.
Houchin Machinery Co., Hawthorne, N. J.
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
Ernest Scott & Co., Fall River, Mass.
F. J. Stokes Machine Co., 5918 Tabor Rd., Phila.
Wurster & Sanger, 5201 Kenwood Ave., Chicago.

DEODORIZING BLOCKS AND CRYSTALS

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Chemical Compound Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prod. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chem. Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., Long Island City
Columbia Soap & Chem. Co., Inc., 324 Leavenworth St., San Francisco
Crystal Labs., Inc., 21 W. Park Way, N. E., Pittsburgh, Pa.
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Elkay Products Corp., 323 W. 16th St., N. Y.
Fitch Dustdown Co., 801 S. Howard St., Baltimore
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Goulard & Olena, 140 Liberty St., N. Y.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chemical Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Industrial Labs., 17-19 W. Conway St., Baltimore
Jansen Soap & Chemical Co., 324 Leavenworth St., San Francisco, Cal.
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Moore Bros. Co., 67 Vestry St., N. Y.
North Coast Soap & Chem. Wks., Seattle, Wash.
Palmer Products Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Puritan Chemical Co., Atlanta, Ga.
Reliable Chemical Co., P. O. Box 361, Passaic, N. J.
Theo. B. Robertson Prods., Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Rochester Sanitary Prods. Co., 874 Seward St., Rochester, N. Y.



Klenz - Aire Deodorant Oils

Antiseptic	Honeysuckle	Oriental
Bouquet	Jasmin	Pine Needle
Cedar	Lavender	Rose
Clover	Lilac	Sandalwood
Eucalyptus	Mint	Trefle
Gardenia	New Mown Hay	Wisteria

Formula for use

3 ounces Klenz-Aire Deodorant Oil
3 ounces Formaldehyde U.S.P. 40%
Balance—water to make one gallon

This formula makes a finished deodorant spray in milky emulsion form which may be colored any shade to make it more attractive.

There is a great field for a deodorant of this type. It kills all tobacco, cooking, theatre and tavern odors. It purifies the air of any public place where crowds assemble. A little of this finished spray solution used by means of a spray directly into public urinals, will have an instant and efficient deodorizing effect.

Klenz-Aire Deodorant Oils will absolutely accomplish what we claim for them. Experiment yourself and be convinced.

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15 East 30th St., New York • Factory: Springdale, Conn.
Atlanta • Dallas • Memphis • Pittsburgh • Chicago


ORDER YOUR
DEODORANT BLOCS
FROM HYSAN
With factory space increased three-fold . . . new manufacturing and wrapping equipment . . . HYSAN now has five times the bloc producing capacity for
PROMPT SHIPMENT
We planned this expansion over a year ago—and couldn't have timed it better! Today, with multiplied factory and warehouse space—with production capacity for blocs, floor treatments, waxes, soaps, disinfectants, etc., *vastly expanded* . . . HYSAN leads in service, quality, and prompt shipment to the Sanitary Supply Trade.
HYSAN PRODUCTS COMPANY
Manufacturing Chemists
58 E. Cullerton St. Chicago, Illinois
AIRE-CON
It Pays To Order ALL Your Sanitary Supplies From HYSAN
1. FASTER SHIPMENT . . . from our new large plant.
2. MORE LEADERS More new products for you to sell.
3. BETTER PACKAGES —and better looking private labels.
5. BIGGER CATALOGUE Over 330 items. Carries your imprint.
CLEANERS • FLOOR TREATMENTS • WAXES
POLISHES • DISINFECTANTS • SOAPS
DEODORANTS • INSECTICIDES

DEODORIZING BLOCKS AND CRYSTALS (Contd.)

Selig Co., 336 Marietta St., Atlanta, Ga.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
Trojan Products & Mfg. Co., 3107 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Victory Chemical Co., 148 Fairmount Ave., Phila.
White Tar Co., Kearny, N. J.
York Chemical Co., 424 W. 18th St., N. Y.

DERRIS PRODUCTS (see CUBE PRODUCTS)

DETERGENTS (Alkaline Salt Compounds)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
American Soap & Washoline Co., Cohoes, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour & Co., 1355 W. 31st St., Chicago
Baum's Castorine Co., Rome, N. Y.
Blockson Chemical Co., Joliet, Ill.
Calgon, Inc., Pittsburgh
Candy & Co., 2515 W. 35th St., Chicago
Chemical Mfg. & Dist. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Cowles Detergent Co., 7916 Euclid Ave., Cleveland
Delta Chem. Co., 4 Payson Ave., N. Y.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
DuBois Soap Co., Cincinnati
E. I. DuPont de Nemours & Co., Wilmington, Dela.
Economics Laboratory, Globe Bldg., St. Paul
Fuld Bros., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hercules Powder Co., Wilmington, Dela.
Higley Chemical Co., Dubuque, Iowa
Hysan Prods. Co., 58 E. Cullerton St., Chicago
A. R. Maas Chem. Co., South Gate, Calif.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Midway Chemical Co., 5235 W. 65th St., Chicago
Monsanto Chemical Co., 1724 S. 2nd St., St. Louis
Napthole, Inc., 15 E. 26th St., New York
National Oil Prods. Co., Harrison, N. J.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Philadelphia Quartz Co., 125 S. 3rd St., Philadelphia
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati, O.
Theo B. Robertson Prods. Co., 700 W. Division St., Chicago
Sandoz Chem. Works, 61 Van Dam St., N. Y.
Stevens Soap Corp., 200 Sullivan St., Brooklyn, N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Thompson-Hayward Chem. Co., 2915 S. W. Blvd., Kansas City
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Jos. Turner & Co., Ridgefield, N. J.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Warner Chemical Co., 405 Lexington Ave., N. Y.
Wyandotte Chemical Co., Wyandotte, Mich.

DETERGENTS, Synthetic (Non-soap)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Chemical Mfg. & Dist. Co., Easton, Pa.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Emulsol Corp., 59 E. Madison St., Chicago
Fuld Bros., 702 S. Wolfe St., Baltimore
General Drug Co., 644 Pacific St., Bklyn.
General Dyestuff Corp., 435 Hudson St., N. Y.
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hercules Powder Co., Wilmington, Del.
Higley Chemical Co., Dubuque, Iowa
Hysan Prods Co., 58 E. Cullerton St., Chicago
Lever Bros. Co., Cambridge, Mass.
Michel Export Co., 90 Broad St., N. Y.
Monsanto Chemical Co., St. Louis
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Peck's Prods. Co., St. Louis
Procter & Gamble Co., Cincinnati, O.
Richards Sales Corp., Jersey City, N. J.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Van Dyk & Co., 57 Wilkinson Ave., Jersey City, N. J.

DETERGENTS, Synthetic (Non-soap) Raw Materials

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Dyestuff Corp., 435 Hudson St., N. Y.
Michel Export Co., Inc., 90 Broad St., N. Y.
National Aniline & Chemical Co., 40 Rector St., N. Y.
National Oil Prods. Co., Harrison, N. J.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

DIATOMACEOUS EARTH, see Bleaching Earths

DIES (see SOAP DIES)

DIETHANOLAMINE (see ETHANOLAMINE)

DIFFUSERS (Steam and Air)

Electric Sprayit Co., Sheboygan, Wisc.
Fumeral Co., Racine, Wisc.
Mystic Products Co., 417 No. 5th St., Minneapolis

DIP OIL (see COAL TAR RAW MATERIALS)

DIPHENYL OXIDE (see AROMATIC CHEMICALS)

DISH WASHING COMPOUND DISPENSERS

Wm. M. Britton Co., 6243 S. Manhattan, Los Angeles
Chemical Mfg. & Dist. Co., Easton, Pa.
Economics Laboratory, Inc., 622 Globe Bldg., St. Paul
Fuld Bros., 702 S. Wolfe St., Baltimore
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Mathieson Alkali Wks., 60 E. 42nd St., N. Y. (Cakes)
V. C. Products Co., Beury Bldg., Philadelphia (Powders)

DISH WASHING COMPOUNDS (see CLEANING COMPOUNDS)

DISINFECTANTS, CHLORINATED

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc. of Mo., St. Louis.
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., Long Island City,
Eagle Soap Corp., Huntington, Ind.

BAIRD & McGUIRE, Inc.

HOLBROOK, MASS. **ST. LOUIS, MO.**

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WE take great pride in offering you Coal Tar Disinfectants of such outstanding quality that after once trying them no other make will satisfy you.

Manufactured from special "chilled" tar acid oils, saponified under rigid control conditions—to form perfect emulsions in water—imparting a crisp, clean "tarry" odor.

Expertly made—chemically and bacteriologically controlled—tested before you receive them—WE make sure YOUR customer is satisfied.

USES

As a STOCK DIP and DISINFECTANT FOR CATTLE, HORSES, SHEEP, HOGS, DOGS and POULTRY. As a GENERAL DISINFECTANT, GERMICIDE, INSECTICIDE, DEODORANT, and ANTISEPTIC. Used in Industrial Plants, Institutions, Hotels, Public Buildings, etc.

PINE OIL DISINFECTANTS

ALL of our Pine Oil Disinfectants are manufactured from steam-distilled pine oil under rigid chemical control, forming perfect milky-white emulsions. We offer four grades; namely, Orpine, Coefficient 3; Penpine, Coefficient 4; Clearpine, Coefficient 5; and Superfine, Coefficient 7. You cannot go wrong on any one of these products.

USES

As a general disinfectant and deodorant, around industrial plants, institutions, hotels, public buildings, and for many uses in the household.

DISINFECTANTS, CHLORINATED (Contd.)

Fuld Bros., 702 S. Wolfe St., Baltimore
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco Cal.
R. M. Hollingshead Corp., Camden, N. J.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods Co., 58 E. Cullerton St., Chicago
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
McLaughlin Gormley King Co., Minneapolis, Minn.
Merck & Co., Rahway, N. J.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
North Coast Soap & Chem. Works, Seattle, Wash.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Sanitary Prods. Co., 874 Seward St., Rochester, N. Y.
Sherwin-Williams Co., 601 Canal Rd., Cleveland
Thompson-Hayward Chemical Co., Kansas City, Mo.
Trojan Products & Mfg. Co., 3107 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.

DISINFECTANTS, COAL TAR

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc. of Mo., St. Louis
Banner Chem. Prods. Co., 329 Mulberry St., Newark, N. J.
Samuel Cabot, Inc., 141 Milk St., Boston
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., Long Island City,
Wm. Cooper & Nephews, 1909 Clifton Ave., Chicago
Creco Co., Inc., Creco Bldg., Long Island City, N. Y.
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fergusson Laboratories, Drexel Bldg., Phila.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Haag Laboratories, Inc., 6101 E. S. May St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Phila.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
McLaughlin Gormley King Co., 1715 Fifth St., S. E., Minneapolis, Minn.
Merck & Co., Rahway, N. J.
National Oil Prods. Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Rochester Germicide Co., Rochester, N. Y.
Sherwin-Williams Co., 601 Canal Rd., Cleveland, Ohio
Shores Co., Cedar Rapids, Ia.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Vliet & Co., 638 Monroe St., Brooklyn
West Disinfecting Co., Long Island City, N. Y.
White Tar Co., Kearny, N. J.
York Chemical Co., 424 W. 18th St., N. Y.

DISINFECTANTS, PINE OIL

Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc., of Mo., St. Louis

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SUPERIOR BETTER ($) VALUE

SUPERIOR Products give you a head-start on your every requirement because into each product go the finest quality materials obtainable to produce the best possible results—at the lowest possible cost to you.

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Do you know about SUPERIOR PINE-GLO NEUTRAL CLEANSER—the heavy-bodied liquid scrubbing soap that thoroughly cleans and preserves every type of floor speedily, efficiently and economically?

Are you well informed about STA-BRITE SELF-POLISHING LIQUID WAX—the finish that bestows a rich, beautiful, lustrous, long-lasting, water-resisting finish on every type of floor in record time?

Excellent RESULTS

And have you heard about SUPERIOR GOLDEN PINE SOLUBLE DISINFECTANT—the lighter, whiter Disinfectant with the pure steam distilled pine oil base that is ideal for hospitals and institutions because it is pine-scented, clear and transparent—and non-toxic, non-irritating and non-corrosive?

Find out about the COMPLETE SUPERIOR LINE. From one manufacturer—SUPERIOR SOAP CORPORATION—you can order the best soap and sanitary products that modern manufacturing equipment, skilled artisans and highest grade materials can produce!

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Decide right now to get the biggest value for every cent you spend. Decide right now to guarantee satisfied customers and repeat business. Just put the complete SUPERIOR Line to work for you!

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SUPERIOR SOAP CORPORATION
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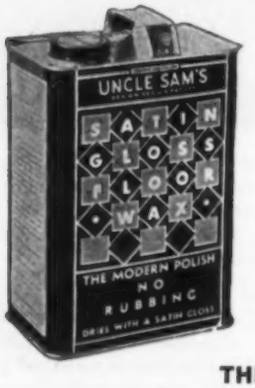
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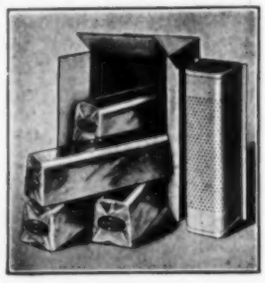
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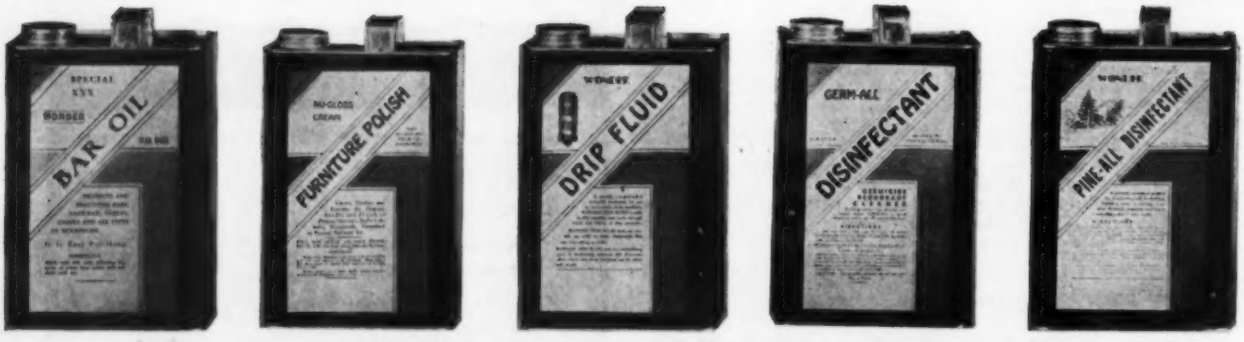
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Cole Chemical Co., 22-14 37th Ave., Long Island City
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Davies-Young Soap Co., Dayton, O.
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Hysan Prods. Co., 58 E. Cullerton St., Chicago
Midway Chemical Co., 5235 W. 65th St., Chicago
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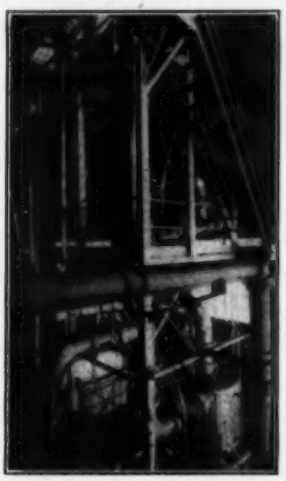
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Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Ernest Scott & Co., Fall River, Mass.
Wurster & Sanger, 5201 Kenwood Ave., Chicago

FATTY ACIDS, HYDROGENATED (see HYDROGENATED OILS)

FATTY ACIDS

(see also Brokers and Dealers)

Armour Soap Wks., 1355 W. 31st St., Chicago
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Celina Stearic Acid Co., Celina, Ohio
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Darling & Co., 4201 So. Ashland Ave., Chicago
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
A. Gross & Co., 295 Madison Ave., N. Y.
Otto A. C. Hagen Corp., 929 Public Ledger Bldg., Phila.
W. C. Hardesty Co., 41 E. 42nd Street, N. Y.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Spencer Kellogg & Sons., Buffalo, N. Y.
Los Angeles Soap Co., Los Angeles, Calif.
N. I. Malmstrom & Co., 147 Lombardy St., Brooklyn
National Oil Prod. Co., Harrison, N. J.
Procter & Gamble Co., Cincinnati, O.
J. H. Redding, Inc., 17 Battery Place, N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 5th Ave., N. Y.
Silmo Chemical Co., Vineland, N. J.
C. F. Simonin's Sons, Tioga & Belgrade St., Phila.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Starkie Co., 528 N. Cuyler Ave., Oak Park, Ill.
Swift & Co., Union Stock Yards, Chicago
Theobald Industries, Kearny, N. J.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Twitchell Process Co., Ivorydale, Ohio
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
M. Werk Co., St. Bernard, Cincinnati
Wilson-Martin Co., Swanson St., Phila.
Woburn Degreasing Co., 1200 Harrison Ave., Harrison, N. J.

FATTY ALCOHOLS

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
N. I. Malmstrom & Co., 147 Lombardy St., Bklyn., N. Y.
Michel Export Co., 90 Broad St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
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FATTY ALCOHOLS, Sulfonated, See SULFONATED FATTY ALCOHOLS

FELDSPAR (see ABRASIVES AND FILLERS)

FIBRE CASES (see BOXES, FIBRE)

FIBRE CANS (see CANS, FIBRE)

FILLERS (see TALC, BENTONITE, CLAYS, ETC.)

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Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
B. F. Gump Co., 431 S. Clinton St., Chicago (Bbls & Bags)
S. Howes Co., Silver Creek, N. Y. (Bbls.)
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Pneumatic Scale Corp, North Quincy, Mass.
Sprout, Waldron & Co., Muncy, Pa.
Stokes & Smith Co., 4915 Summerdale Ave., Philadelphia
Triangle Package Machinery Co., 906 N. Spaulding Ave., Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

FILLING MACHINERY (Liquids, Bottles)

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Clevon Products Co., 27-31 Mechanic St., Buffalo
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Ertel Engineering Corp., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Horix Mfg. Co., Pittsburgh
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Pfaudler Co., Rochester, N. Y.
Pneumatic Scale Corp, North Quincy, Mass.
Scientific Filter Co., 1 Franklin Sq., N. Y.
U. S. Bottlers Machinery Co., 4025 N. Rockwell St., Chicago
Vol-U-Meter Co., 707 Ohio St., Buffalo

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Alsop Engineering Corp., 100 High St., Milldale, Conn.
S. F. Bowser & Co., Ft. Wayne, Ind.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Clevon Products Co., 27-31 Mechanic St., Buffalo
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Ertel Engineering Co., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Horix Mfg. Co., Pittsburgh
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Pfaudler Co., Rochester, N. Y.
Pneumatic Scale Corp., North Quincy, Mass.
Scientific Filter Co., 1 Franklin Sq., N. Y.
F. J. Stokes Machine Co., 5918 Tabor Rd., Philadelphia
U. S. Bottlers Machinery Co., 4025 N. Rockwell St., Chicago
The Vol-U-Meter Co., 707 Ohio St., Buffalo, N. Y.
Weigh Right Automatic Scale Co., Joliet, Ill.

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S. F. Bowser & Co., Ft. Wayne, Ind.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Clevon Products Co., 27-31 Mechanic St., Buffalo
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
National Acme Co., E. 131st St., & Coit Ave., Cleveland
Scientific Filter Co., 1 Franklin Sq., N. Y.
The Vol-U-Meter Co., 707 Ohio St., Buffalo, N. Y.

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Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Clevon Products Co., 27-31 Mechanic St., Buffalo
Consolidated Prods. Co., 15 Park Row, N. Y. Used
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Filler Machine Co., 1250 E. Montgomery St., Philadelphia
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
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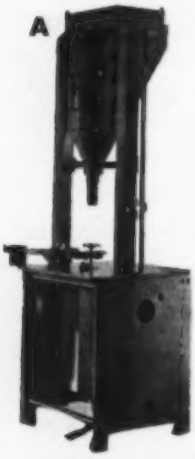
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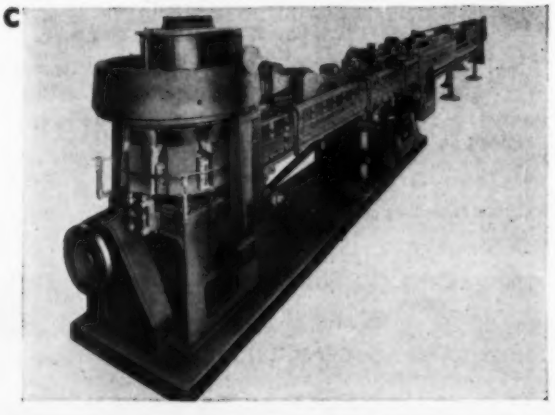
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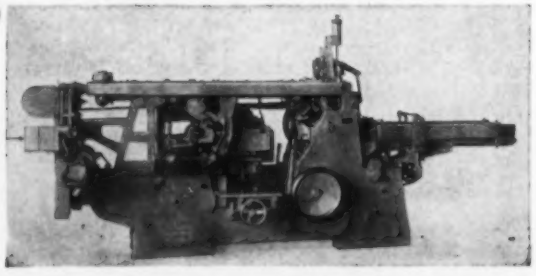


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Triangle Package Machy. Co., 910 N. Spaulding Ave., Chicago
Vol-U-Meter Co., 707 Ohio St., Buffalo, N. Y.
Weigh Right Automatic Scale Co., Joliet, Ill.

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Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Stokes & Smith Co., 4915 Summerdale Ave., Phila.

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Clevon Products Co., 27-31 Mechanic St., Buffalo
Arthur Colton Co., Detroit, Mich.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
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J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
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F. J. Stokes Mach. Co., 5918 Tabor Rd., Philadelphia
Triangle Package Machinery Co., 906 N. Spaulding Ave., Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

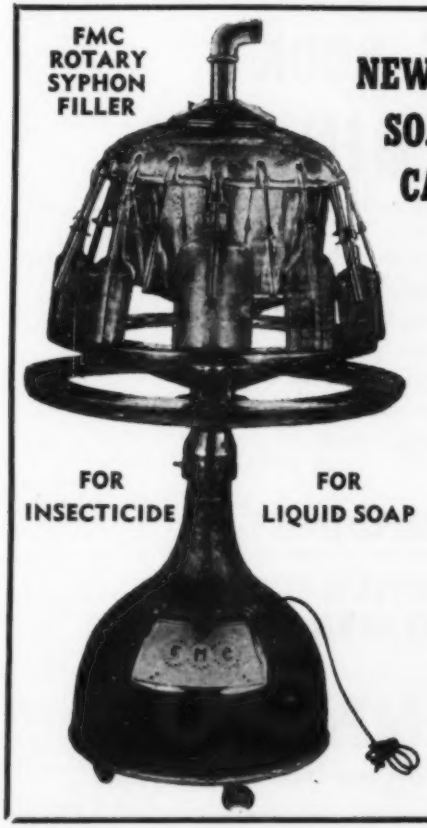
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Karl Kiefer Machine Co., Cincinnati, O.
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Palo Co., 81 Reade St., N. Y.
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Filtrol Corp., 315 W. 5th St., Los Angeles
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Innis-Speiden & Co., 117 Liberty St., New York
Johns-Manville Corp., 22 East 40th St., New York
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Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Ertel Engineering Corp., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Foster Pump Wks., Inc., 54 Washington St., Brooklyn
Jacob House & Sons, 52 St. Paul St., Buffalo
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Lancaster Iron Works, Lancaster, Pa.
Mixing Equipment Co., 1067 Garson Ave., Rochester, N. Y.
Oliver United Filters, Inc., 33 W. 42nd St., N. Y.
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Price Fire & Water Proofing Co., Poughkeepsie, N. Y.
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Victor Chemical Works, 141 West Jackson Bldg., Chicago

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National Oil Prods. Co., Harrison, N. J.
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J. H. Reduing, Inc., 17 Battery Place, N. Y.
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Newell Gutradt Co., 350 Fremont St., San Francisco, Cal.
North Coast Chem. & Soap Works, Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
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Peck's Products Co., St. Louis
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Hild Floor Machine Co., 1313 W. Randolph St., Chicago
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Lincoln-Schlueter Floor Machy. Co., 512 S. Peoria Ave., Chicago
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Armour & Co., 1355 W. 31st St., Chicago
Banner Chem. Prods. Co., 329 Mulberry St., Newark, N. J.
Baum's Castorine Co., Rome, N. Y.
Candy & Co., 2515 W. 35th St., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
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FEDERAL

Sealers, Finishes and Waxes

for Every Type of Surface

Federal Floor Preservatives and Polishes are highly perfected products. They are the result of constant research, both in the laboratory and in practical usage. They are specialized products made by America's largest manufacturer of Preservatives and Polishes selling in bulk.

The Federal Line—a quality product for every purpose and every surface.

NO-BURN GYM FINISH
An extremely hard, durable finish that will not rubber-burn on gymnasium floors and which has such remarkable resistance to wear and abuse, it can be used on all types of interior or exterior surfaces including dance floors, school furniture, desks, seats, etc. Applied with a lamb's-wool mop, applicator or cheesecloth pad.

G. F. B. No. 2
This is No-Burn Gym Finish except made in a standard body for brush application.

G. F. B. No. 3
Is the same remarkably durable finish as No-Burn Gym Finish but intended for use only on surfaces where a hand rubbed finish is desired.

G. F. B. CONCENTRATED BASE COLORS
Highly perfected concentrated base colors for use with No-Burn Gym Finish to impart colors as well as extreme durability on wood, concrete and cement surfaces. Made in Light Oak, Dark Oak, Light Gray, Dark Gray, Walnut, Maroon, Green.

FED-CO PENETRATING SEALER
This is a highly specialized penetrating sealer for wood floors. Seals wood pores, makes a harder, longer wearing floor that is easy to clean. Meets the conditions and requirements of large organizations operating chain units. Applied by spraying or large lamb's-wool applicator. Forms a hard, durable finish that will not stain merchandise accidentally dropped on it.

PENETROIL SEALER
A penetrating sealer, very pale in color, that can be used for sealing either new surfaces or surfaces that have been formerly sealed. It properly fills the pores and is resistant to water.
Especially recommended as a sealer type material for use where subsequent coats of wax are to be applied.

TERRAZZO SEALER
The perfect sealer for terrazzo and marble floors. Reduces cost of maintenance. Prevents penetration of dirt. Very pale.

MOP-VAR
A Penetrating Sealer to be applied with a mop or other applicator. Reduces maintenance and application costs. For wood, concrete, hard mastic or magnesite, cork and cork tile.

LIGHTNING LUSTRE
A wear and water resisting, self-polishing, high lustre carnauba wax base finish of highest quality. For linoleum, congoleum, wood, rubber tile, soft composition and for maintenance of practically any surface.

VAR-LIN
A preservative and polish combining the hardest waxes of best quality, varnish gums and quick drying solvents. Very durable and practically eliminates the slipping hazard. Polishes to a beautiful gloss.

LIQUID OIL BASE WAX
A wax of the oil base type. Applied with a mop or applicator. Buffs and polishes beautifully. A superior product of its type.

RUBBER LACQUER
A superior lacquer developed particularly for use on rubber and rubber tile. Dries rapidly, easily applied and very durable. Will not discolor light shades.

LINOLEUM LACQUER
Specially made for printed, lacquer finished inlaid linoleum and congoleum or Sealex types of linoleum. Dries in 30 minutes, easy to apply and will not cause light, delicate shades to fade or discolor.

GYM FINISH CLEANER AND POLISH
Specially developed for cleaning gymnasium floors, hand ball and basket ball courts, etc. Perfectly cleans rubber shoe marks and other soil, difficult to remove.

LESLIP WATER WAX
A high lustre, self-polishing wax—made to enable you to meet price competition—compares most favorably when tested for brilliance, body, wearing qualities, washability and resistance to slip, with much higher priced products.

LINOLEUM, RUBBER & TERRAZZO CLEANER
Meets perfectly all requirements for a superior cleaner for these surfaces. Keeps the surface always in proper condition and prevents deterioration.

GYM FINISH MARKING ENAMELS
Another Federal specialized product made for marking hand ball courts, basket ball floors, running lanes, etc. Has the remarkable wearing quality of Gym Finish and possesses great covering and hiding power. Made in White, Red, Black, Yellow, Blue, Green, Tan, Ivory, Orange and Jade.

STREET MARKING OR TRAFFIC PAINT
A rapid drying paint for marking traffic lanes, parking spaces and similar uses. For both inside and outside use. Dries for traffic use in 30 minutes. Has remarkable wearing quality necessary for a product of this kind.

Also
PASTE WOOD FILLERS AND VARNISH REMOVERS

Our laboratories are constantly developing new products and perfecting new methods and treatments for beautifying and preserving all floor surfaces. Write for complete information, testing samples and prices.

FEDERAL VARNISH COMPANY

Dept. 420, 331-337 SO. PEORIA STREET, CHICAGO, ILL.

FLOOR SCRUB SOAPS (Contd.)

Cole Chemical Co., 22-14—37th Ave., Long Island City,
Churchill Mfg. Co., Galesburg, Ill.
Davies-Young Soap Co., Dayton, O.
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Empire Chem. Prods. Co., 12 Longworth Ave., Newark, N. J.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Haag Laboratories, 6101 S. May St., Chicago
Harley Soap Co., Peirce & Orthodox Sts., Philadelphia
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Kranich Soap So., 60 Richards St., Brooklyn
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Natl. Oil Prods. Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Thompson-Hayward Chem. Co., Kansas City, Mo.
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Twi-Laq Chemical Co., N. Portland Ave., Bklyn.
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago

FLOOR WAXES

American Wax Co., 13-26 128th St., College Point, L. I.
Ampion Corp., 4-88—47th Ave., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Buckingham Wax Corp., Van Dam St., & Borden Ave., L. I. City, N. Y.
Candy & Co., 2515 W. 35th St., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Davies-Young Soap Co., Dayton, O.
Delta Chem. Co., 4 Payson Ave., N. Y.
Dri-Brite, Inc., 4443 Cook Ave., St. Louis
Economics Laboratory, St. Paul
Empire Chemical Prods. Co., 10 Longworth St., Newark, N. J.
Federal Varnish Co., 337 S. Peoria St., Chicago
Fox Lake Wax Co., Fox Lake, Ill.
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Franklin Research Co., 5134 Lancaster Ave., Philadelphia
Fuld Bros., 702 S. Wolfe St., Baltimore
Haeuser Shellac Co., 52 Warren St., Brooklyn
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
International Metal Polish Co., Twill St. & Belt Ry., Indianapolis
La Maison Prods., Inc., 80 York St., Brooklyn
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
M. & H. Laboratories, 2703 Archer Ave., Chicago
Nu Wax On Prods. Mfg. Corp., 317-A 37th St., Brooklyn
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Pennsylvania Refining Co., Butler, Pa.
Perrow Chemical Co., Hunt, Va.

GOOD PRODUCTS

MADE BY US UNDER CAREFUL LABORATORY CONTROL
BULK PACKAGES AND PRIVATE LABELS

DISINFECTANTS

Pine Oil Disinfectants, (Coefs. 3 and 4)
Coal Tar Disinfectants
Phenolic Emulsifying Disinfectants, (Coefs. 2 to 20)
Soluble Cresylic Disinfectants (B. A. I. Specifications)
Saponated Solution of Cresol, U. S. P. (Cresol Comp. Solution)

Phenol coefficients determined by Lawall and Harrisson Laboratories.

SOAPS

Liquid Hand Soaps (up to 40%)
Soap Bases (Coconut, Linseed and other Vegetable Oil)
Oil Soaps (Paste and Liquid)
Pine Jelly Soaps
Pine Scrub Soaps—Liquid
Liquid Scrub Soap—Natural
Sassafrassy Scrub Soap
Ammoniated Scrub Soap
Auto Soft Soap
Soft Soap (Green Soap) U. S. P.
Hospital Soaps
Saddle Soap (in cans)
Dog Soap (cake)
Fish Oil Soaps (semi-liquid and hard)
Govt. Specification Soaps

INSECTICIDES

Fly Sprays
Bed Bug Sprays
Moth Spray
Cattle Sprays
Concentrated Insect Spray
Animal Dip (Cattle and Sheep)
Agricultural Insecticides:
Oil Emulsions (dormant spray)
Fish Oil Spray Soaps (spreader, sticker, and insecticide)
Deodorant Liquid for drip machines
Deodorant Blocks

POLISHES, WAXES and CLEANERS

Self Polishing Waxes (12% to 20% solids)
Buffing Floor Waxes (Liquid & Paste)
(Oil Wax or Spirit Wax)
Liquid Metal Polish
Liquid Silver Polish
Liquid Furniture Polish (Cream Emulsion)
Lemon Oil Polish
Cedar Oil Polish
Floor Oils
Wax Base Floor Cleaner (Wax-Soap)
Liquid Toilet Fixture Cleaner
Degreasing Compound

SPECIALTIES

Weed Killer (Liquid-Concentrated)
Fire Extinguishing Liquid (CTC Base)
Soda & Acid Fire Extinguishing Recharges
Powdered Rosin (bulk and packages)
Camphorated Oil U. S. P.
Pine Tar U. S. P.
Coal Tar, N. F.

JAMES GOOD, INC.
MANUFACTURING CHEMISTS SINCE 1868
2116 E. SUSQUEHANNA AVE., PHILADELPHIA, PENNA.



keep 'em rolling with these 4 BIG MONEY MAKERS from CANDY & CO.

Bright Beauty Self-Polishing
FLOOR WAX

Bright Beauty is a self-polishing liquid floor wax that is slightly on the "soft" side. Product of laboratory research and practical experiment, Bright Beauty offers outstanding advantages in ease of spreading . . . freedom from streaks . . . quick drying . . . beautiful lustre . . . non-slipperiness . . . light color . . . pleasing odor . . . maximum durability . . . stability of emulsion . . . resistance to water. Being on the "soft" side, traffic marks are readily blended, while buffing produces an extremely high lustre. When re-waxing is necessary, Bright Beauty is readily removed. Available in any solid content from 8% to 24%.

SparX Self-Polishing
FLOOR WAX

SparX is a self-polishing liquid floor wax that is slightly on the "hard" side. Like Bright Beauty it offers similar advantages in ease of spreading . . . freedom from streaks . . . quick drying . . . beautiful lustre . . . non-slipperiness . . . light color . . . pleasing odor . . . maximum durability . . . stability of emulsion. Being on the "hard" side, SparX does not scuff easily and offers maximum resistance to water . . . extremely important where the wax is subjected to frequent damp-moppings, wet traffic, etc. Available in any solid content from 8% to 20%.

Bright Beauty Heavy Duty
PASTE CLEANER

A smooth uniform material, similar in texture to cold cream, Bright Beauty Paste Cleaner easily adheres to cloth or pad and readily adapts itself to the surface to be cleaned. It will not "ball up" after being spread out . . . nor "run away" from cloth, sponge or cleaning pad. To insure quick action without scratching, the abrasive in Bright Beauty Paste Cleaner is carefully graded. Coarser particles are eliminated without increasing the percentage of super-fine inactive particles appreciably. Made for all around use on practically all types of surfaces, such as: glass, steel, composition, nickel, copper, brass, enamel, painted wall, terrazzo, aluminum, linoleum, marble, tile, etc.

Bright Beauty Concentrated
CREAM POLISH

Four outstanding features put this remarkable furniture polish in a class by itself: 1. ECONOMICAL—Bright Beauty Concentrated Cream Polish may be diluted with several times its own volume of water. A little goes a long way. 2. QUICK—Spreads rapidly over any surface . . . quickly buffed to a brilliant lustre. 3. DURABLE—May be repolished time and again before another application is necessary. Does not easily finger print. Resists moisture and water spotting. 4. "NON-SMOKING"—Will not gather dust or "smoke up." Retains its beautiful gloss without requiring frequent repolishing or cleaning.

Bright Beauty products are sold through distributors only . . . never direct to the consuming trade. It is our unalterable policy never to compete with our jobbers. Packed in attractive containers under your own label . . . Bright Beauty products are competitively priced, yet can be sold so as to allow you a liberal margin of profit.

CANDY & COMPANY, INC.

2515 West 35th Street **Chicago, Ill.**

Wax Specialists for Over 40 Years

Makers of Paste Wax, Spirit Liquid Waxes, Powdered Dance Floor Wax, Concentrated Cream Furniture Polish, Paste Cleaners

FLOOR WAXES (Contd.)

Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Shawmut Specialty Co., 311 Centre St., Boston
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
H. F. Staples Co., Medford, Mass.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Twi-Laq Chemical Co., 25 N. Portland Ave. Brooklyn
Twin City Shellac Co., 340 Flushing Ave., Brooklyn
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.
T. F. Washburn Co., 2244 Elston Ave., Chicago
Windsor Wax Co., Inc., 611 Newark St., Hoboken, N. J.

FLOTATION OILS

Armour & Co., 1355 W. 31st St., Chicago
Barrett Co., 40 Rector St., N. Y.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Cliffs Dow Chemical Co., Marquette, Mich.
Crosby Naval Stores, Picayune, Miss.
General Naval Stores Co., 230 Park Ave., N. Y.
Glidden Co., Naval Stores Div., Jacksonville, Fla.
Hardwood Chemical Co., 2 Jersey St., Buffalo, N. Y.
Hercules Powder Co., Wilmington
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Koppers Co., Koppers Bldg., Pittsburgh
National Aniline & Chemical Co., 40 Rector St., N. Y.
Pittsburgh Coal Carbonization Co., Oliver Bldg., Phila.
Reilly Tar & Chemical Corp., Indianapolis, Ind.
Republic Chemical Co., 94 Beekman St., N. Y.
Sherwood Refining Co., Englewood, N. J.
Tennessee Eastman Corp., Kingsport, Tenn.

FLUORIDES

(see also Dealers)

Aluminum Co. of America, Gulf Bldg., Pittsburgh
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Fluoride Corp., 151 W. 19th St., N. Y.
Blockson Chemical Co., Joliet, Ill.
Foote Mineral Co., 1609 Summer St., Philadelphia
General Chemical Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 97th St., Cleveland
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Lindsay Light & Chem. Co., West Chicago, Ill.
Merck & Co., Rahway, N. J.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Pfaltz & Bauer, 350 Fifth Ave., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

FLY SPRAYS (see HOUSEHOLD INSECTICIDE SPRAYS)

FOAMING AGENTS (see SAPONIN)

FOOT BATHS (Rubber)

U. S. Rubber Co., Market & South Sts., Passaic, N. J.

FORMALDEHYDE

(see also Brokers and Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Cliffs-Dow Chem. Co., Marquette, Mich.
Delta Chem. & Iron Co., Wells, Mich.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Wm. S. Gray Co., 342 Madison Ave., N. Y.
Hercules Powder Co., Wilmington, Del.
Heyden Chem. Co., 50 Union Sq., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mallinckrodt Chemical Work, St. Louis, Mo.
Merck & Co., Rahway, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Jos. Turner & Co., 630 Fifth Ave., N. Y.

FORMALDEHYDE CANDLES

Bauer & Black, Chicago
Cenol Co., 4250 N. Pulaski Ave., Chicago
Depree Chem., Holland, Mich.

FRAMES (Soap)

Brill Equipment Corp., 133 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 49th St., Brooklyn
Littleford Bros., 451 E. Pearl St., Cincinnati
Newman Tallow & Soap Mach. Co., 1051 W. 35th St., Chicago

FULLERS EARTH

American Colloid Co., 363 W. Superior St., Chicago
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Philadelphia
Attapulgus Clay Co., 260 So. Broad St., Phila.
Chas. B. Chrystal Co., 16 Hudson St., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
Filtrol Corp., 315 W. 5th St., Los Angeles
Fullers Earth Co., 2049 E. 100th St., Cleveland
Hammill & Gillespie, 225 Broadway, N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jas. H. Rhodes & Co., 157 W. Hubbard St., Chicago
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Sinclair Refining Co., East Chicago, Ind.
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Tamms Silica Co., 228 N. La Salle St., Chicago
United Clay Mines Corp., 101 Oakland St., Trenton, N. J.
Charles A. Wagner Co., 809 Callowhill St., Phila.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Whittaker, Clark & Daniels, 260 W. Broadway, N. Y.

FUMIGANTS (Cyanide, etc.)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
Mechling Bros. Chemical Co., Camden, N. J.
Michigan Alkali Co., Ford Bldg., Detroit
Rohm & Haas Co., Inc., 222 W. Washington Sq., Philadelphia

GAS MASKS

Davis Emergency Equip. Co., 55 Van Dam St., N. Y.
Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh, Pa.

GAUGES (see INSTRUMENTS)

WURSTER & SANGER, INC.

Contracting and Consulting Engineers

52nd STREET & S. KENWOOD AVENUE, CHICAGO, ILLINOIS

Specialists in the Soap, Glycerine, Fat and Oil Industries

Complete Plants and Engineering Services for:

Crude, Dynamite and C. P. Glycerine
Refining, Bleaching and Deodorizing Oils
Hydrogenation of Oils
Vegetable Ghee
Vegetable Shortening, Margarine
Salad Oil, Winter Oil
Evaporation in Single, Double and Multiple Effects
Fat Splitting: Eisenlohr Continuous Process
Twitchell and Autoclave Processes
Stearic Acid and Red Oil
Fatty Acid Distillation
Laundry and Toilet Soaps
Oil Extraction and Degreasing
Glue and Gelatine
Continuous Glue Evaporation

Development of Processes, Reports, Investigations

W & S GLYCERINE EVAPORATORS

The improved WURSTER & SANGER Soap Lye Evaporator constitutes a marked advance in calandria design. Positive circulation of liquor in a definite direction has proved to increase the rate of evaporation and promote the separation of large crystals.

The WURSTER & SANGER Sweet-Water Evaporator has fulfilled the long need of complete accessibility for cleaning of tubes. It is equipped with an external heating element which affords high liquid velocity and a high rate of heat transfer.

CONTINUOUS GLYCERINE REFINING

Our Continuous Glycerine Refining Plants represent the most modern and economical equipment for the production of Dynamite, High Gravity and C. P. grades from Crude. We have developed a plant which is an improvement over all former methods of distilling glycerine.

Our plants are producing C. P. glycerine in one distillation with yields of over 98% from Soap Lye Crude and low steam consumption. All glycerine is condensed in concentrated form eliminating the handling of sweet-waters. Continuous operation and automatic controls reduce the operating attention to a minimum.

OIL REFINING AND DEODORIZING PLANTS

WURSTER & SANGER Oil Refining and Deodorizing Plants for the production of edible oils are suitable for cottonseed, corn, soya bean, peanut, cocoanut and other oils. Our equipment, processes and services cover completely all phases of this industry.

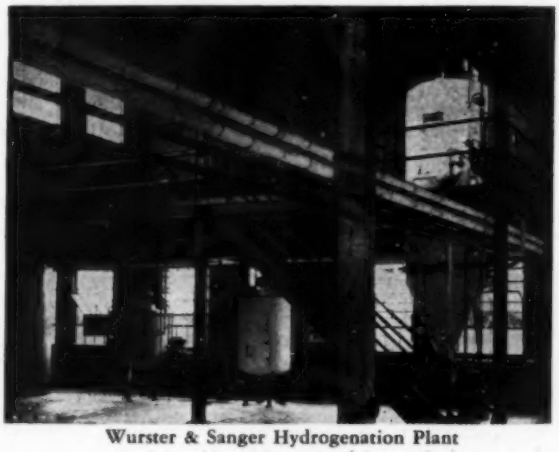
HYDROGENATION PLANTS

WURSTER & SANGER Oil Hardening Plants are built for partially or completely hardening vegetable oils, fish oils, lard and tallow, for edible and technical purposes.

Our plants are simple, efficient and economical in operation and give uniform products of highest quality.



Wurster & Sanger Continuous Glycerine Distillation Plant



Wurster & Sanger Hydrogenation Plant

W & S CATALYST REDUCER

The operation of the WURSTER & SANGER Wet Catalyst Reducer is completely automatic, resulting in a uniform catalyst of the greatest activity, longest life and less susceptible to poisons. The hazards encountered in dry reduction methods are eliminated. Operating costs are extremely low.

FATTY ACID DISTILLATION

WURSTER & SANGER Fatty Acid Distillation Plants, Continuous and Batch Type, are of improved design and construction throughout. Operation is under high vacuum and at low temperature, producing a superior quality of distilled fatty acids with high yields.

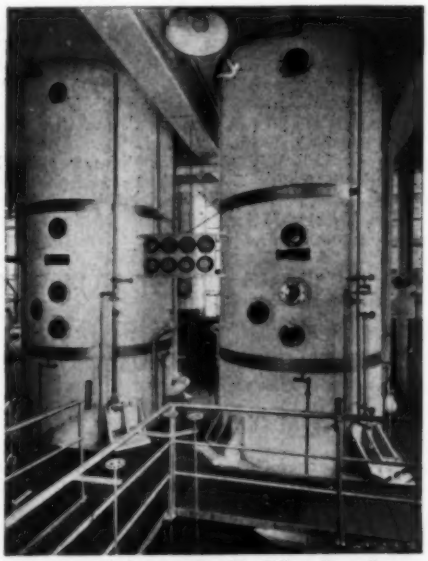
SOAP AND SOAP POWDER PLANTS

We specialize in the design and buildng of soap plants. Our Spray-Process Soap Powder Plant is producing soap powder at the lowest production cost.

ESTIMATES AND QUOTATIONS

We are glad to furnish information and quotations covering any equipment from the smallest part of an installation to complete plants for the manufacture of products from fats and oils.

Your inquiries will have our prompt consideration.



Wurster & Sanger Double Effect Soap Lye Glycerine Evaporator

GERANIOL (see AROMATIC CHEMICALS)

GERANIUM OIL (see ESSENTIAL OILS)

GERANYL ACETATE (see AROMATIC CHEMICALS)

GIFT SETS (see NOVELTY SOAPS AND TOILET SOAPS)

GLASS BOTTLES and JARS (see BOTTLES)

GLASS and WINDSHIELD CLEANERS

Ampion Corp., 47-02—5th St., Long Island City, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Buck-Jack Co., 3056 Federal St., Baltimore
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Delta Chem. Co., 4 Payson Ave., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., Kensington, Philadelphia
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hull Co., 305 Washington St., Brooklyn
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Industrial Labs., 17-19 W. Conway St., Baltimore
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Lewis Soap & Chem. Co., Oakland, Calif.
M. & H. Laboratories, 2703-5 Archer Ave., Chicago
National Oil Prods. Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wis.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
John Sunshine Chem. Co., 604 W. Lake St., Chicago
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Wilco Co., 6800 McKinley Ave., Los Angeles

GLUES (see ADHESIVES)

GLYCERINE (Refined)

Armour & Co., 1355 W. 31st St., Chicago
Century Stearic Acid Candle Wks., 41 E. 42nd St., N. Y.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
A. Gross & Co., 295 Madison Ave., N. Y.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Lever Bros. Co., Cambridge, Mass.
Los Angeles Soap So., Los Angeles, Calif.
National Oil Prods. Co., Harrison, N. J.
Leo Pasternak, 110 William St., N. Y. (Brokers)
Procter & Gamble Co., Cincinnati
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Swift & Co., Union Stock Yards, Chicago
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 West 65th St., Chicago

GLYCERINE DISTILLATION PLANTS

E. B. Badger Co., 25 Pitts St., Boston
William Garrigue & Co., 9 S. Clinton St., Chicago
Alan Porter Lee, Inc., 136 Liberty St., N. Y
Ernest Scott & Co, Fall River, Mass.
Swenson Evaporator Co., Harvey, Ill.
Wurster & Sanger, 5201 S. Kenwood Ave., Chicago

GREASES (Fats for Soap)

Armour & Co., 1355 W. 31st St., Chicago
Belleville Rendering Co., Belleville, Ill.
Consolidated Rendering Co., 178 Atlantic Ave., Boston
Cudahy Packing Co., 221 N. La Salle, Chicago
Darling & Co., 4201 S. Ashland Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Otto A. C. Hagen Co., 929 Ledger Bldg., Philadelphia
Long Island Soap Co.,
Meeker Ave. & Bridgewater St., Brooklyn
N. I. Malmstrom & Co., 147 Lombardy St., Brooklyn
Pennsylvania Refining Co., Butler, Pa.
Procter & Gamble Co., Cincinnati
Willibald Schaefer Co., Foot of Bremen Ave., St. Louis
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Louis Stern Sons, Inc., Produce Exchange, N. Y.
Theobald Industries, Kearny, N. J.
Toledo Tallow Co., Toledo, Ohio
Waltham Tallow Co., Waltham, Mass.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wilson & Co., Union Stock Yards, Chicago
Wilson-Martin Co., Swanson St., Philadelphia
Woburn Degreasing Co., Harrison, N. J.

GREASES, LUBRICATING (See PETROLEUM BASES)

GREEN SOAP (see POTASH SOAP)

GRINDING MACHINERY (for milling, pulverizing, etc.)

Abbe Engineering Co., 50 Church St., N. Y.
American Pulverizer Co., 18th & Austin Sts., St. Louis
C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland
Brill Equipment Corp., 133 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Gruendler Patent Crusher & Pulverizer Co.,
900 N. First St., St. Louis
B. F. Gump Co., 412 S. Clinton St., Chicago
Houchin Machy. Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
Kent Machine Works, 39 Gold St., Brooklyn
Lancaster Iron Works, Lancaster, Pa.
J. M. Lehmann Co., 248 Broadway, N. Y.
Olsen & Tilgner Mfg. Co., 2276 Elston Ave., Chicago
H. K. Porter Co., 49th & Hancock Sts., Pittsburgh
Prater Pulverizer Co., 1829 S. 55th Ave., Chicago
Chas. Ross & Sons, 150 Classon Ave., Brooklyn
Patterson Foundry & Machine Co., East Liverpool, Ohio
Sprout Waldron & Co., Muncy, Pa.
Stephens-Adamson Mfg. Co., Aurora, Ill.
F. I. Stokes Machine Co., Philadelphia, Pa.
Sturtevant Mill Co., Harrison Sq., Boston
Williams Patent Crusher & Pulverizer Co., St. Louis

GUMS

American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
C. W. Campbell Co., 157 Chambers St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Philadelphia
Dodge & Olcott Co., 180 Varick St., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
R. Gesell, Inc., 200 W. Houston St., N. Y.
Hercules Powder Co., Wilmington, Del.
J. L. Hopkins & Co., 220 Broadway, N. Y.
I. S. Innes Corp., 533 Canal St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
George H. Lincks, 155 John St., N. Y.
Neuman-Buslee & Wolfe, 224 W. Huron St., Chicago
Orbis Products Corp., 215 Pearl St., N. Y.
S. B. Penick &Co., 50 Church St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
J. H. Redding, Inc., 17 Battery Place, N. Y.
R. F. Revson Co., 144 W. 18th St., N. Y.
Rohm & Haas Co., 222 W. Washington Sq., Philadelphia
H. H. Rosenthal Co. 25 E 26th St., N. Y.
William H Scheel, Inc., 193 Water St., N. Y.
Stein, Hall & Co , 285 Madison Ave., N. Y.
Stephens-Adamson Co., Aurora, Ill.
Stroock & Wittenberg, Lincoln Bldg., N. Y.
Thurston & Bradich, 286 Spring St., N. Y.
Arthur C. Trask Co., 4102 S. La Salle St., Chicago
Welch Holme & Clark Co., 563 Greenwich St., N. Y.

GUNS, Powder (see BELLOWS, Insect Powder)

GYM-FINISH FLOOR SEAL (see FLOOR FINISHES)

HAND (Mechanic's) SOAP

Ampion Corp., 4-88 47th Ave., Long Island City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour & Co., 1355 W. 31st St., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Buck-Jack Co., 3056 Federal St., Baltimore
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Columbia Soap & Chem. Co., Inc.,
324 Leavenworth St., San Francisco
Cudahy Packing Co., 221 N. La Salle St., Chicago
Davies Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
A. C. Fergusson Co., Drexel Bldg., Phila.
Flash Chem. Co., 160 2nd St., Cambridge, Mass.
Fuld Bros., 702 S. Wolfe St., Baltimore
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, O.
Hockwald Chem. Co.. 135 Mississippi St., San Francisco
R. M. Hollingshead Co., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
San Francisco, Cal.
Mione Mfg. Co., Collingdale, Pa.
National Sanitary Prods. Co., 217 N. 2nd St., St. Louis
North Coast Soap & Chem. Wks., Seattle, Wash.
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Skat Co., Hartford, Conn.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Trojan Products & Mfg. Co.,
3107 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
United Cleanser Mfg. Co., Cambridge, Mass.
U. S. Sanitary Spec. Corp., 435 S Western Ave, Chicago
Utility Co., 636 W. 44th St., N. Y.
Vanco Co., Manchester, Conn.
Vliet Soap Co., 638 Monroe St., Brooklyn
Washine-National-Sands, Inc., 37-02 Northern Blvd.,
Long Island City

HAND SOAP, Powdered

Ampion Corp., 4-88 47th Ave., Long Island City, N. Y.
Armour & Co, 1355 W. 31st St., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
J. Eavenson & Sons, Camden, N. J.
Fuld Bros., Baltimore
Hercules Powder Co., Wilmington, Del.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Co., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
La Maison Products, Inc., 80 York St., Brooklyn
M & H Laboratories, 2705 Archer Ave., Chicago
National Oil Prods. Co., Harrison, N. J.
Packwood Mfg. Co., St. Louis
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Port Huron Detergent Co., Port Huron, Mich.
Presto Mfg. Co., Myrtle and Curfew Sts., St. Paul, Minn.
Procter & Gamble Co., Cincinnati
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Chicago
Warren Soap Mfg. Co., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

HARD WATER SOAPS (Coconut Oil Bar Soaps)

Armour Soap Wks., 1355 W. 31st St., Chicago
Baum's Castorine Co., Rome, N. Y.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
James Counts Soap Co., 2nd & Washington Aves., St.
Louis
Cudahy Packing Co., 221 N. LaSalle St., Chicago
Davies-Young Soap Co., Dayton, O.
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Harley Soap Co., Pierce & Orthodox Sts., Phila., Pa.
Haskins Bros. & Co., Omaha, Neb.
Hewitt Soap Co., Dayton, Ohio
Higley Chemical Co., Dubuque, Iowa
Jansen Soap & Chemical Co., 324 Leavenworth St. San
Francisco, Calif.
Los Angeles Soap Co., Los Angeles, Calif.
National Oil Prods. Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
Newell Gutradt Co., 350 Fremont St., San Francisco, Cal.
North Coast Soap & Chem. Works, Seattle, Wash.
Peck's Prod. Co., 5224 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Theo. B. Robertson Prods. Co., 700 W. Division St.,
Chicago
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y
Swift & Co., Union Stock Yards, Chicago
Vliet Soap Co., 638 Monroe St., Brooklyn
Warren Soap Mfg. Co., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.
Chas. W. Young & Co., 1247 N. 26th St, Philadelphia

HELIOTROPIN (see AROMATIC CHEMICALS)

HOLDERS (Deodorizing Block)
(see also Cans, Fibre)

Chemical Mfg. & Dist. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Cin-Made Corp., (fibre), 294 Eggleston Ave., Cincinnati
Clifton Chemical Co., 247 Front St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Edelman Co., 6249 S. St. Lawrence Ave., Chicago
Elkay Products Corp., 323 W. 16th St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
Garnet Chem. Corp., 911 N. Lumber St., Allentown, Pa.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
San Francisco, Cal.
National Sanitary Chem. Co., Baltimore, Md.
Palmer Products, Inc., Waukesha, Wis.
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Rochester Germicide Co., 16 Downing Pl., Rochester, N.Y.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp.,
435 S. Western Ave., Chicago

HOMOGENIZERS (DISPERSION EQUIPMENT)

Abbe Engineering Co., 50 Church St., N. Y.
Manton-Gaulin Mfg. Co., 19 Charlton St., Everett, Mass.
Wurster & Sanger, 5201 S. Kenwood Ave., Chicago

HORTICULTURAL SPRAY BASE (see PETROLEUM BASES)

HOUSEHOLD AMMONIA (prepared, in bulk and private brand)

Chemical Supply Co., 2450 Canal Rd., Cleveland
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14 37th Ave., Long Island City
Fergusson Laboratories, Drexel Bldg., Philadelphia
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., Kensington, Philadelphia
Haag Laboratories, Inc., 6101 S. May St., Chicago
Hockwald Chem. Co., 30 Bluxome St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Merck & Co , Rahway, N. J.
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago, Ill.
Shores Co., Cedar Rapids, Iowa
John T. Stanley Co., Inc., 642 W. 30th St., N. Y.
Thompson Hayward Chem. Co., Des Moines, Iowa
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
Washine-National-Sands, Inc., 37-02 Northern Blvd.,
Long Island City

HOUSEHOLD INSECTICIDE BASE (see PETROLEUM BASES)

HOUSEHOLD INSECTICIDES, LIQUID

American Mothproof Co., 2330 W. View St., Los Angeles
Ampion Corp., 4-88 47th Ave., Long Island City, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal.
Antiseptol Co., 5524 Northwest Highway, Chicago
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire Inc. of Mo., St. Louis
Banner Chemical Co., 329 Mulberry St., Newark, N. J.
Barton Chemical Co., 3907 S. Langley Ave., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Cary Mfg. Co., Joliet, Ill.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Columbia Soap & Chem. Co., Inc., 324 Leavenworth St.,
San Francisco
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Derris, Inc., 79 Wall St., N. Y.
C. B. Dolge Co., Westport, Conn.
Elkay Products Corp., 323 W. 16th St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Edelman Co., 6249 S. St. Lawrence Ave., Chicago
Exterminating Materials Co., 555 W. 22nd St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Goulard & Olena, 140 Liberty St., N. Y.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Phila.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
James Huggins & Son, 239 Medford St., Malden, Mass.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
San Francisco
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Lewis Soap & Chem. Co., Oakland, Calif.
Maywood Pest Exterminators, Maywood, Ill.
McCormick & Co., Baltimore, Md.
M. & H. Laboratories, 2703-5 Archer Ave., Chicago
Midway Chemical Co., 5235 W. 65th St., Chicago

- HI-TOX 20 -

A SYNTHETIC CONCENTRATE

Before placing your next order for concentrate, investigate the many advantages of HI-TOX 20—a synthetic concentrate based on the esters of carboxylic acids.

EFFICIENT:

HI-TOX 20 has the same killing principle as pyrethrum and when diluted 1 part to 19 parts of base oil gives a finished product with a grade "A" rating. 1 part diluted with 24 parts of base oil gives a finished product with a grade "B" rating.
1 part diluted with 16 parts of base oil gives a finished product with a "AA" rating.

UNIFORM:

HI-TOX 20 is manufactured in U. S. from materials produced in U. S. Thus, the closest chemical control is maintained at all times and the buyer is assured an absolutely uniform product.

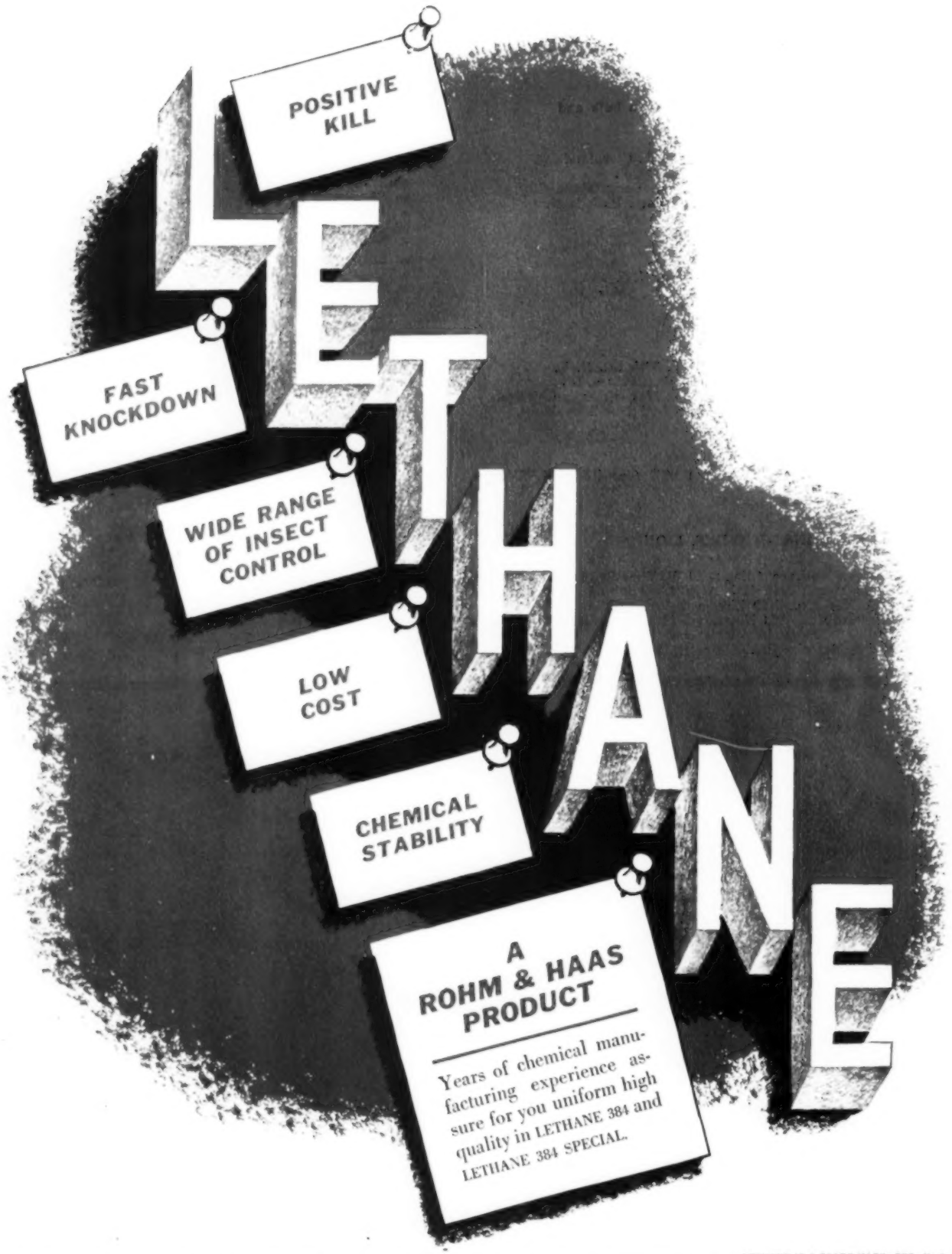
NON-TOXIC:

HI-TOX 20 is non-toxic to warm blooded animals and even a 10% solution is non-irritating. Will not spot, stain or injure any materials.

STABLE:

HI-TOX 20 does not deteriorate with age. Light and temperature have no adverse action on its toxicity. We will gladly send samples and further information. WRITE TODAY.

ASSOCIATED CHEMISTS, INC.
1906 N. HALSTED CHICAGO, ILL.
—Headquarters for all Insecticide Raw Materials—



LETHANE IS A TRADE MARK, REG. U. S. PAT. OFF.

ROHM & HAAS COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Manufacturers of Leather and Textile Specialties and Finishes . . Enzymes . . Crystal-Clear Acrylic Plastics . . Synthetic Insecticides . . Fungicides . . and other Industrial Chemicals

BRANCH OFFICES: CHICAGO . . . KANSAS CITY, MO. . . . OAKLAND & SOUTH GATE, CAL. . . . P. H. ANDERSON & CO., LTD., MONTREAL, CANADIAN AGENTS





HOUSEHOLD INSECTICIDES LIQUID (Contd.)

Edgar A. Murray Co., 2703 Guoin St., Detroit
National Sanitary Prods. Co., 217 N. 2nd St. St. Louis
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Perrow Chem. Co., Hurt, Va.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Schaeffer Bros. & Powell Mfg., 102 Barton St., St. Louis, Mo.
Selig Co., 336 Marietta St., Atlanta, Ga.
Shell Oil Co., Inc., 50 W. 50th St., N. Y.
Shores Co., Cedar Rapids, Ia.
Sinclair Refining So., East Chicago, Ind
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
Standard Oil Co., of Calif., San Francisco
Standard Oil Co., (Ind.) 910 S. Michigan Ave., Chicago
Standard Oil Co., (Ohio) Midland Bldg., Cleveland
Thompson-Hayward, 2915 S. W. Blvd., Kansas City
Trojan Products & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Philadelphia
Vliet & Co., 638 Monroe St., Brooklyn
White Tar Co., Kearny, N. J.
Robert C. White Co., Chestnut Hill, Phila.
Wilco Co., 6800 McKinley Ave., Los Angeles
York Chemical Co., 424 W. 18th St., N. Y.

HOUSEHOLD INSECTICIDES, POWDERED

Allaire Woodward & Co., Peoria, Ill.
American Fluoride Corp., 151 W. 19th St., N. Y.
Ampion Corp., 4-88 47th Ave., Long Island City, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Delta Chemical Co., 4 Payson Ave., N. Y.
Derris, Inc., 79 Wall St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Elkay Products Corp., 323 W. 16th St., N. Y.
Exterminating Materials Co., 555 W. 22nd St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Haag Laboratories, 6101 S May St., Chicago
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Lewis Soap & Chem. Co., Oakland, Calif.
Maywood Pest Exterminators, Maywood, Ill.
McCormick & Co., Inc., Baltimore, Md.
McLaughlin Gormley King Co., 1715—5th St., S. E., Minneapolis, Minn.
Midway Chemical Co., 5235 W. 65th St., Chicago
Edgar A. Murray Co., 2703 Guoin St., Detroit
National Sanitary Prods. Co., 217 N. 2nd St., St. Louis
Palmer Products, Inc., Waukesha, Wis.
S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
Ratin Labs., 116 Broad St., N. Y.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Selig Co., 336 Marietta St., Atlanta, Ga.
Shores Co., Cedar Rapids, Ia.
S. S. Stafford, Inc., 603 Washington St., N. Y.
Trojan Products & Mfg. Co., 3107 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago

"D & O"
INSECTICIDE MATERIALS

For Household Insecticides

PYRESSENOL No. 20

ROTOPYRESSENOL No. 20

PYRESSENOL No. 20 ODORLESS

PYRETHRUM EXTRACT No. 20 ODORLESS

ESSENOL OPTESSENOL NEUTRESSENOL

PYRETHRUM, DERRIS AND CUBE POWDERS

For Agricultural Insecticides

DERRIS AND CUBE RESINS

ROTESSENOL AG CONCENTRATE

PYRETHRUM AND ROTENONE EXTRACTS

PYRETHRUM POWDER
(FINEST JAPANESE—200 MESH)

DERRIS POWDER
(4% and 5% Rotenone—200 MESH)

CUBE POWDER
(4% and 5% Rotenone—200 MESH)

D&O
ESTABLISHED IN 1798

Dodge & Olcott Company

180 Varick Street -:- New York, N. Y.

Boston Chicago Philadelphia St. Louis Los Angeles

Plant and Laboratories—Bayonne, N. J.

PENICK BASIC INSECTICIDES

PYREFUME SUPER 20

the "perfected Pyrethrum Extract"—guaranteed in Pyrethrins content. Chemically and physiologically tested for household and agricultural sprays. Proven effective against flies, mosquitoes, roaches, bed bugs, silver-fish and other hardy pests.

DERRIS EXTRACTS

with standardized Rotenone content.

LIQUID

(5% Rotenone) in pine oil or acetone for agricultural and horticultural sprays.

SOFT and GRANULAR

(25-40% Rotenone) for general manufacturing work.

•

ROTENONE

(Chemically pure) for technical use.

•

DERRIS POWDER

(4% or 5% Rotenone) for manufacture of agricultural dusts.

CUBE POWDER

(4% or 5% Rotenone) for manufacture of agricultural dusts.

•

TIMBO POWDER

(4% or 5% Rotenone) for manufacture of agricultural dusts.

•

RED SQUILL POWDER

Physiologically tested—for efficient rat control. Avoid use of customary poisons dangerous to man.

BOOKLETS ON PENICK PERFECTED INSECTICIDES UPON REQUEST

S. B. PENICK & COMPANY

50 Church St., New York, N. Y.

735 W. Division Street, Chicago, Ill.

THE WORLD'S LARGEST BOTANICAL DRUG HOUSE

HOUSEHOLD INSECTICIDES, POWDERED (Contd.)

Victory Chem. Co., 148 Fairmount Ave., Philadelphia
White Tar Co., Kearny, N. J.
York Chemical Co., 424 W. 18th St., N. Y.

HYDROGENATED OILS

Armour & Co., 1355 W. 31st St., Chicago
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, 43 Carew Tower, Cincinnati
W. C. Hardesty Co., Inc., 41 E. 42nd St, N. Y.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Spencer Kellogg & Sons, Buffalo, N. Y.
Procter & Gamble Co., Cincinnati, O.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Welch Holme & Clark, 563 Greenwich St., N. Y.
Wesson Oil & Snowdrift Co., 21 West St., N. Y.
Wyandotte Oil Co., Wyandotte, Mich.

HYDROGENATION PLANTS (see OIL HYDROGENATION PLANTS)

HYDROSULFITES (Soap Bleaches)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Jungmann & Co., 74 Trinity Pl., N. Y.
Monsanto Chem. Co., St. Louis
Richards Sales Corp., Warren & Morris St., Jer. City, N. J.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Royce Chem. Co., Carlton Hill, N. J.

HYDROXYCITRONELLAL (see AROMATIC CHEMICALS)

HYPOCHLORITES (see CHLORINE) (see LAUNDRY BLEACH)

INFUSORIAL EARTH (see ABRASIVES)

INSECT FLOWERS (see PYRETHRUM)

INSECT POWDER (see PYRETHRUM)

INSECT POWDER GUNS (see BELLOWS)

INSECTICIDE BASE (see PETROLEUM BASES)

INSECTICIDE CONCENTRATES, Synthetic

Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
Atlas Powder Co., Wilmington, Del.
Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
John Powell & Co., 114 E. 32nd St., N. Y.
Rohm & Haas, Inc., 222 W. Washington Sq., Phila.
U. S. Industrial Chem. Inc., 60 E. 42nd St., N. Y.
Velsicol Corp., 120 E. Pearson Ave., Chicago
Whitmire Research Corp., 339 E. Vandeventer, St. Louis

The Perfect Base
for your insecticide is

Penn-Drake INSECTI-SOL

PERMANENTLY ODORLESS

Being a fully refined product, completely freed from all unsaturated and unstable compounds, INSECTI-SOL is permanently odorless. Exhaustive tests in our laboratories and in public testing laboratories conclusively proved that INSECTI-SOL is odorless and stays that way.

100% VOLATILE

Penn-Drake Insecti-sol is 100% volatile, and contains nothing to stain or soil clothing, rugs, drapes, etc.

HIGHER KILL

Its unusual floating and penetrating power insure higher kill.

EXCEEDS NAIDM REQUIREMENTS

INSECTI-SOL considerably exceeds the National Association of Insecticide and Disinfectant Manufacturers' minimum requirements. Below are INSECTI-SOL'S specifications:

A.P.I. Gravity	49—50.5
Specific Gravity	0.777—0.784
Saybold Vis. @ 100° F.	30—32 sec.
Flash Point	170°—180° F.
Fire Point	185°—195° F.
Initial Boiling Point	385°—395° F.
Distillation End Point	485°—495° F.
Unsulphonatable Residue	Above 99%
Color	Water White
Odor	Odorless

●

HIGHEST QUALITY WHITE OILS, PETROLATUM

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INSECTICIDE SPRAY PERFUMES (see also PERFUMING MATERIALS)

van Ameringen-Haebler, Inc., 315 4th Ave., N. Y.
Aromatic Products, Inc., 15 E. 30th St., N. Y.
Bayonne Co., 404 Fourth Ave., N. Y.
Bush Pan American, Ltd., 136 Liberty St., N. Y.
Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y.
Compagnie Duval, 121 E. 24th St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
P. R. Dreyer Inc., 119 W. 19th St., N. Y.
E. I. Du Pont de Nemours, Wilmington, Del.
Felton Chemical Co., 603 Johnson Ave., Brooklyn
Fritzsche Bros., Inc., 76 Ninth Ave., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Van Dyk & Co., 57 Wilkinson Ave., Jersey City, N. J.
Magnus, Mabee & Reynard, Inc., 16 Desbrosses St., N. Y.
New York Aromatics Co., 153 Waverly Pl., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 26th St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Tombarel Prods. Corp., 12 E. 42nd St., N. Y.

INSECTICIDE SPREADERS (See Clays)

INSECTICIDE TESTING (see LABORATORIES)

INSECTICIDES (see HOUSEHOLD INSECTICIDES, AGRICULTURAL INSECTICIDES)

INSTRUMENTS, Meters, Gauges, Thermometers, Etc.

Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland
Bausch & Lomb Optical Co., Rochester, N. Y.
S. F. Bowser & Co., Ft. Wayne, Ind.
Bristol Co., Waterbury, Conn.
Brown Instrument Co., Wayne & Windrim Sts., Phila.
Buffalo Meter Co., 2890 Main St., Buffalo, N. Y.
Cambridge Instrument Co., 3732 Grand Cent. Term., N.Y.
G. M. Davis Regulator Co., 2541 S. Washtenaw, Chicago
Eimer & Amend, 633 Greenwich St., N. Y.
Foxboro Co., Foxboro, Mass.
Liquidometer Corp., Long Island City, N. Y.
Pneumercator Co., Sperry Bldg., Brooklyn
Precision Thermometer Co., 1434 Brandywine St., Phila.
Read Machy. Co., York, Pa.
Republic Flow Meters Co., 2240 Diversey Blvd., Chicago
W. A. Taylor & Co., 7300 York Rd., Baltimore
Taylor Instrument Co., Rochester, N. Y.

IONONE (Violet Base) (see AROMATIC CHEMICALS)

ISO-PROPYL ALCOHOL (see ALCOHOL, ISO-PROPYL)

JAPAN WAX (see WAXES)

JARS, GLASS (see BOTTLES)

JASMIN, ARTIFICIAL (see AROMATIC CHEMICALS)

KAOLIN (see CLAYS)

KEROSENE (see PETROLEUM)

KETTLES

Alloy Prods. Corp , 221 Madison St., Waukesha, Wis.
Alsop Engineering Corp., 100 High St., Milldale, Conn.
Aluminum Co. of America, Gulf Bldg., Pittsburgh
Bethlehem Foundry & Mach. Co., Grand Cent. Bldg., N.Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Lancaster Iron Works, 564 S. Prince St., Lancaster, Pa.
Littleford Bros., 443 E. Pearl St., Cincinnati
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago.
Patterson Foundry & Machine Co., East Liverpool, O.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Sowers Mfg. Co., 1296 Niagara St., Buffalo, N. Y.
F. J. Stokes Mach. Co., Philadelphia, Pa.
Struthers-Wells Co., Warren, Pa.
Stuart & Peterson Co., Burlington, N. J.
H. B. Trout Co., 240 Ohio St., Buffalo, N. Y.

KIESELGUHR (Infusorial Earth) (see ABRASIVES AND FILLERS)

KITS (Wooden) (see PAILS, WOODEN)

LABELING MACHINES (Bottles and Cans)

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Burt Machine Co., Baltimore, Md.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Economic Machinery Corp., Worcester, Mass.
Edward Ermold Co., 652-64 Hudson St., N. Y.
J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
National Labeling Machine Co., 129 W. 19th St., Long Island City, N. Y.
New Jersey Machine Corp., Hoboken, N. J.
Pneumatic Scale Corp., North Quincy, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago
Scientific Filter Co., 1 Franklin Square, N. Y.

LABELING MACHINES (Boxes & Cakes)

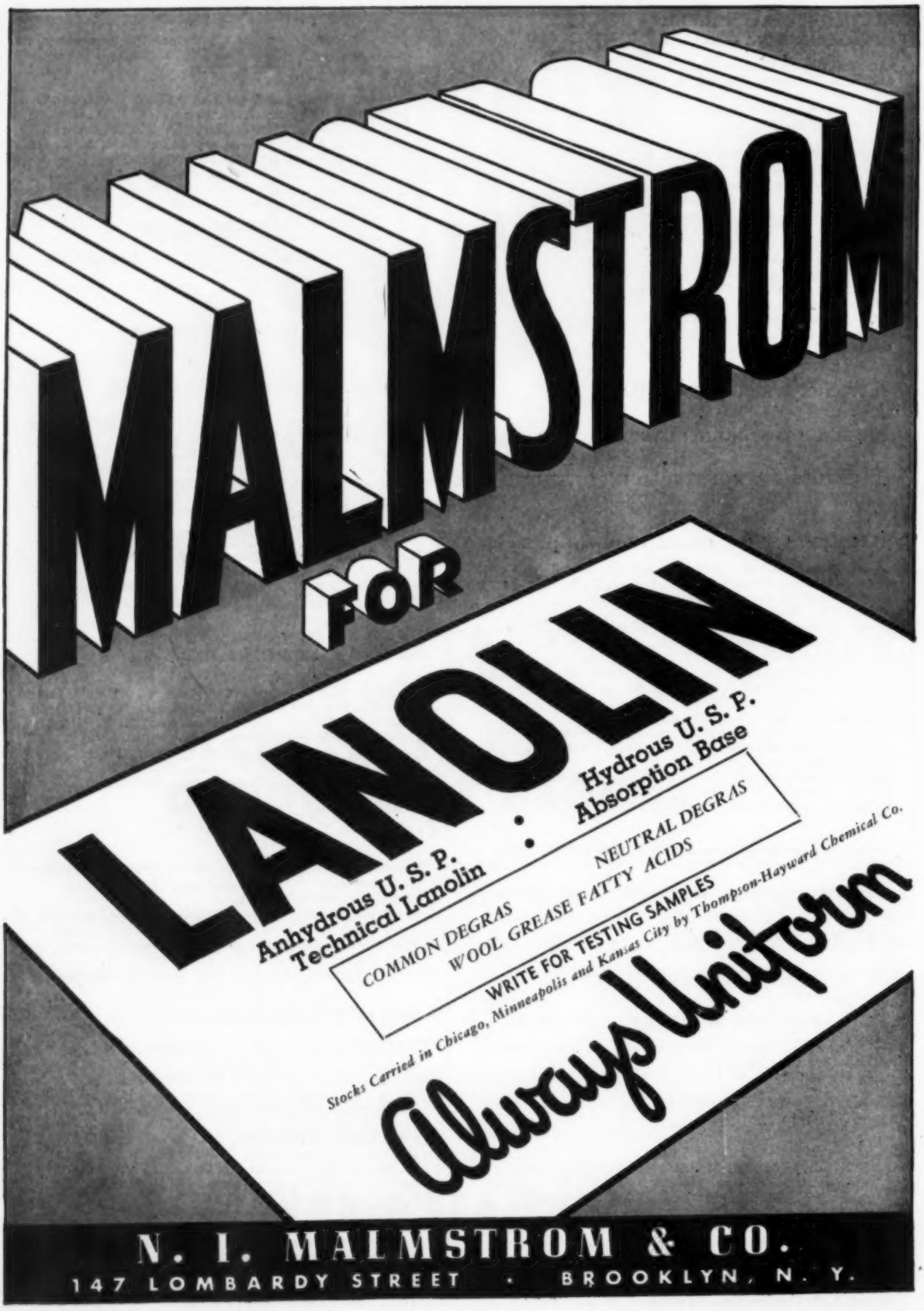
Alsop Engineering Corp., 100 High St., Milldale, Conn.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
New Jersey Machine Corp., Hoboken, N. J.
Pneumatic Scale Corp., North Quincy, Mass.
Scientific Filter Co., 1 Franklin Square, N. Y.
Stokes & Smith Co., Summerdale, Phila., Pa.

LABELS

American Lithographic Co., 85 N. 3rd St., Brooklyn
Dennison Mfg. Co., Framingham, Mass.
Foxon Co., Providence, R. I.
Henderson Lithographing Co., Norwood, Cincinnati
R. J. Kittredge Co., 812 W. Superior St., Chicago
Strobridge Lithographing Co., Cincinnati
U. S. Printing & Litho. Co., Cincinnati, O.

LABORATORIES, TESTING

Applied Research Laboratories, Dayton, N. J.
Columbus Labs., 33 N. State St., Chicago
Curtis & Tompkins, Ltd., 236 Front St., San Francisco
Dairy Laboratories, 2300 Locust St., Phila.
Entomological Testing Labs., 114 E. 32nd St., N. Y.
Lloyd A. Hall, 1415 W. 37th St., Chicago
Hochstadter Laboratories, Inc., 254 W. 31st St., N. Y.
Illinois Chemical Labs., Gridley, Ill.
La Wall & Harrison, 214 S. 12th St., Phila.
Lederer Bacteriological Labs., 269 S. 19th St., Phila.
Pease Laboratories, 39 W. 38th St., N. Y.
W. S. Purdy Co., 128 Water St., N. Y.
Samuel P. Sadtler & Son, 210 S. 13th St., Phila.
Seil, Putt & Rusby, 16 E. 34th St., N. Y.
Skinner & Sherman, 246 Stuart St., Boston
Foster D. Snell, 305 Washington St., Brooklyn
Stillwell & Gladding, 130 Cedar St., N. Y.
Taub Labs., 115 W. 68th St., N. Y.


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LABORATORY APPARATUS

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Eastern Engineering Co., 45 Fox St., New Haven, Conn.
Eimer & Amend, 633 Greenwich St., N. Y.
Fisher Scientific Co., Pittsburgh
Emil Greiner Co., 161—6th Ave., N. Y.
Laboratory Construction Co., 111 Holmes St., Kansas City, Mo.
Scientific Materials Co., Pittsburgh
Arthur H. Thomas Co., Wash Sq., Phila.
Will Corp., Rochester, N. Y.

LABORATORY CHEMICALS

J. T. Baker Chemical Co., Phillipsburg, N. J.
General Chemical Co., 40 Rector St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Mallinckrodt Chemical Works, 3600 N. 2nd St., St. Louis
Merck & Co., Rahway, N. J.
Pfaltz & Bauer, Inc., 350 5th Ave., N. Y.
Richards Sales Corp., Warren & Morris St., Jersey City, N. J.

LANOLIN

Bopf-Whittam Corp., Linden, N. J.
Hummel Chemical Co., 90 West St., N. Y.
Adolphe Hurst & Co., 330 W. 42nd St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Lanaetex Prods. Sales Corp., Elizabeth, N. J.
N. I. Malmstrom & Co., 147 Lombardy St., Brooklyn
Merck & Co., Rahway, N. J.
Pfaltz & Bauer, Inc., 350 5th Ave., N. Y.
Robinson-Wagner Co., 110 E. 42nd St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Welch, Holme & Clark, 563 Greenwich St., N. Y.

LAUNDRY BLEACH (see also CHLORINE)

American Soap & Washoline Co., Cohoes, N. Y.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chrisman Supply Co., Fayetteville, N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Delta Chemical Mfg. Co., 2101 Washington Blvd., Baltimore (Sodium & Calcium Hypochlorite)
Higley Chemical Co., Dubuque, Iowa
Hysan Products Co., 58 E. Cullerton St., Chicago
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Legrand Bleach Corp., 111-49th St., Brooklyn
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Monsanto Chemical Co., St. Louis, Mo.
Peck's Prods. Co., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Surpass Chemical Co., Albany, N. Y.
Thompson-Hayward Chemical Co., Kansas City, Mo.
Jos. Turner & Co., Ridgefield, N. J.
Warner Chemical Co., 405 Lexington Ave., N. Y.
Washine-National-Sands, Inc., 37-02 Northern Blvd., Long Island City

LAUNDRY BLUE

American Fluoride Corp., 151 W. 19th St., N. Y.
American Soap & Washoline Co., Cohoes, N. Y.
Chemical Mfg. & Dist. Co., Easton, Penna.
Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Diamond Alkali Co., 535 Smithfield Ave., Pittsburgh
Fezandie & Sperrle, 205 Fulton St., N. Y.
Interstate Color Co., 5 Beekman St., N. Y.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Napthole, Inc., 15 E. 26th St., N. Y.
National Aniline & Chemical Co., 40 Rector St., N. Y.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Pylam Products Co., 799 Greenwich St., N. Y.
Washine-National-Sands, Inc., 37-02 Northern Blvd., Long Island City

LAUNDRY SOAP, CAKE

American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Beach Soap Co., Lawrence, Mass.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Fels & Co., Philadelphia
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, O.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Long Island Soap Co., Meeker Ave. & Bridgewater St., Brooklyn
Los Angeles Soap Co., Los Angeles, Calif.
Manhattan Soap Co., Bristol, Pa.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
National Soap Co., 357 S. 25th St., Tacoma, Wash.
Newell Gutradt Co., 350 Fremont St., San Francisco, Cal.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
North Coast Chem. & Soap Wks., Seattle, Wash.
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Union Stock Yards, Chicago
Vliet Soap Co., 638 Monroe St., Brooklyn, N. Y.
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

LAUNDRY SOAP, CHIP

American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Beach Soap Co., Lawrence, Mass.
Chemical Mfg. & Dist. Co., Easton, Pa.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Harris Soap Co., Buffalo, N. Y.
Haskins Bros. Co., Omaha
Hewitt Soap Co., Dayton, Ohio
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Lightfoot Schultz Co, 1412 Park Ave., Hoboken, N. J.
Long Island Soap Co., Meeker Ave. & Bridgewater St., Brooklyn
Los Angeles Soap Co., Los Angeles, Calif.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
Nat'l Milling & Chem. Co., Manayunk, Phila.
National Oil Prods. Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Union Stock Yards, Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St, Chicago, Ill.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

LAUNDRY SOAP, POWD. AND GRAN.

American Soap Powder Wks., 100 Van Dyke St., Brooklyn, N. Y.
American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Beach Soap Co., Lawrence, Mass.
Chemical Mfg. & Dist. Co., Easton, Pa.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati, O.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Haskins Bros. & Co., Omaha

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CLASSIFICATIONS OF SCIENTIFICALLY PRODUCED SOAPS...

CHEMICALLY BALANCED FOR PERFORMANCE AND ECONOMY— SATISFY ALL YOUR SOAP DEMANDS!

Check over this list. You'll find a product for every soap requirement you have—you'll find a full line of related soaps from one source—you'll find the highest quality chemically controlled and balanced soaps.

Auto Soaps
Chip Soaps (and flakes)
Dry Cleaning Soaps
Hand Soap (powdered)
Hotel Soaps
Laundry Soaps
Laundry Soaps (chips)
Laundry Soaps (powdered and granulated)
Liquid Soap Base
Liquid Soaps
Medicinal Soap (cake)
Mottled Soap
Oil Soaps
Scouring Powder
Scouring Soap
Scrubbing Soap (liquid)
Shampoo Base
Shampoo Liquid
Soap Powder (white neutral)
Soap Powders
Textile Soaps
Toilet Soap Base
Toilet Soaps
Washing Powder

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H. Kohnstamm & Co., 91 Park Pl., N. Y.
Los Angeles Soap Co., Los Angeles, Calif.
Geo. E. Marsh Co., 200 Broadway. Cambridge, Mass.
Napthole, Inc., 15 E. 26th St., N. Y.
Nat'l Milling & Chem. Co., Manayunk, Phila.
National Oil Prods. Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Products Co., 5224 N. 2nd St., St. Louis, Mo.
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
John T. Stanley Co., 642 W. 30th St., N. Y.
Stevens Soap Corp., 202 Sullivan St., Brooklyn
Swift & Co., Union Stock Yards, Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St., Chicago, Ill.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

LAUNDRY SODA, see SODA

LAUNDRY SOURS (Fluoride, etc.)

Aluminum Co. of America, Gulf Bldg., Pittsburgh
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Fluoride Corp, 151 W. 19th St., N. Y.
Blockson Chemical Co., Joliet, Ill.
Chemical Mfg. & Dist. Co., Easton, Pa.
Diamond Alkali Co., 535 Smithfield Ave., Pittsburgh, Pa.
General Chem. Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Hummel Chem. Co., 90 West St., N. Y.
Hysan Products Co., 58 E. Cullerton St., Chicago
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
Port Huron Detergent Co., Port Huron, Mich.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Standard Chem. Co., Columbus, O.
Thompson-Hayward Chemical Co., Kansas City, Mo.
Victor Chemical Wks., 141 W. Jackson Blvd., Chicago
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

LAURIC ACID (see also FATTY ACIDS)

Beacon Co., 89 Beckford St., Boston
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Woburn Degreasing Co. of N. J., Harrison, N. J.

LAURYL ALCOHOL

E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Michel Export Co., 95 Broad St., N. Y.

LAVENDER OIL (see ESSENTIAL OILS)

LEAD ARSENATE

American Cyanamid & Chem Co., 30 Rockefeller Plaza, N. Y.
California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y
Sherwin-Williams Co., Cleveland, O.

LECITHIN

American Lecithin Corp., Corona Ave., Elmhurst, L. I.
Digestive Ferments Co., 930 Henry St., Detroit
R. W. Greeff & Co., 10 E. 40th St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Merck & Co., Rahway, N. J.
Soya Corp. of America, 30 Rockefeller Plaza, N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.
Wilson Labs., 4221 S. Western Blvd., Chicago

LEMON OIL (see ESSENTIAL OILS)

LEMONGRASS OIL (see ESSENTIAL OILS)

LIME (Live and Hydrated)

California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
E. I. Du Pont de Nemours, Wilmington, Del.
Hoosac Valley Lime Co., Adams, Mass.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Lehigh Lime Co., 111 W. Washington St., Chicago
National Gypsum Co., 192 Delaware Ave., Buffalo, N. Y.
Rockland-Rockport Lime Co., Rockland, Maine
William H. Scheel, Inc., 193 Water St., N. Y.
U. S. Lime Prods. Corp., 85 Second St., San Francisco
Whiterock Quarries, Inc., Bellefonte, Pa.
Whittaker, Clark & Daniels, Inc., 260 W. Bway., N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

LIME SULFUR

Allen Co., Pittstown, N. J.
California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Sherwin-Williams Co., Cleveland, O.
Shores Co., Cedar Rapids, Iowa

LINALOE OIL (see ESSENTIAL OILS)

LINALOOL (see AROMATIC CHEMICALS)

LINALYL ACETATE (see AROMATIC CHEMICALS)

LINERS (see BAG LINERS)

LINING MACHINERY (Cartons)

Pneumatic Scale Corp., North Quincy, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago

LINSEED OIL

(see also Brokers and Dealers)

Archer-Daniels-Midland Corp., Minneapolis, Minn.
Bisbee Linseed Co., Philadelphia
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
William O. Goodrich Co., Milwaukee, Wis.
Spencer Kellogg & Sons, Buffalo, N. Y.
Kelloggs & Miller, Amsterdam, N. Y.
Minnesota Linseed Oil Co., Minneapolis, Minn.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
J. H. Redding, Inc., 17 Battery Place, N. Y
A. E. Starkie Co., 528 N. Cuyler Ave., Oak Park, Ill.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

LINSEED OIL SOAP (see POTASH SOAPS)

LIQUID SOAP AND BASE (see POTASH SOAP)

MACHINERY (Used) (see USED MACHINERY)

MAGNESIUM CARBONATE

American Cyanamid & Chemical Corp, 30 Rockefeller Plaza, N. Y.
E. I. DuPont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., 961 Market St., Wilmington, Del.
Innis-Speiden & Co., 117 Liberty St., N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

MAGNESIUM OXIDE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Innis-Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

MAGNESIUM STEARATE (see STEARATES)

MANILA GUMS

Gillespie-Rogers-Pyatt Co., 80 John St., N. Y.
O. G. Innes Corp., 533 Canal St., N. Y.
Wm. H. Scheel, Inc., 193 Water St., N. Y.
Stroock & Wittenberg Corp., 60 E. 42nd St., N. Y.

MARINE SOAPS (see SALT WATER SOAPS)

MARSEILLES SOAP (see TEXTILE SOAPS)

MECHANIC'S SOAP (see HAND SOAP)

MEDICINAL SOAPS, CAKE

Armour Soap Wks., 1355 W. 31st St., Chicago
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Hewitt Soap Co., Dayton, O.
Los Angeles Soap Co., Los Angeles, Calif.
Newell Gutradt Co., 350 Fremont St., San Francisco, Cal.
Procter & Gamble Co., Cincinnati
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

MEDICINAL SOAPS, LIQUID (see POTASH SOAPS)

MENTHOL
(see also Essential Oils)

Bayonne Co., 404 Fourth Ave., N. Y.
S. W. Bridges & Co., 82 Wall St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
P. R. Dreyer, 119 W. 19th St., N. Y.
Fritzsche Bros., Inc., 76 Ninth Ave., N. Y.
Magnus, Mabee & Reynard, Inc., 16 Desbrosses St., N. Y.
A. Maschmeijer, Jr., Inc., 45 W. 16th St., N. Y.
McKesson & Robbins, Inc., 155 E. 42nd St., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 26th St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Sherka Chemical Co., 86 Orange St., Bloomfield, N. J.
Standard Synthetics, Inc., 119 W. 25th St., N. Y.
Tombarel Prods., 12 E. 22nd St., N. Y.

MERCURY BICHLORIDE (Corrosive Sublimate)

General Chem. Co., 40 Rector St., N. Y.
Heyden Chemical Corp., 50 Union Sq., N. Y.
Mallinckrodt Chemical Works, St. Louis
Merck & Co., Rahway, N. J.
New York Quinine & Chem. Wks., N. 11th & Berry Sts., Brooklyn
Chas. Pfizer & Co., 81 Maiden Lane, N. Y.
Wood Ridge Mfg. Co., Wood Ridge, N. J.

METAL CAPS (see CAPS, METAL)

METAL POLISH (see POLISH)

METAL RECEPTACLES (Waste Baskets, Spittoons, etc., Garbage Pails & Barrels)

Justrite Mfg. Co., 2061 N. Southport Ave., Chicago
F. H. Lawson Co., Cincinnati
National Enameling & Stamping Co., Milwaukee, Wisc.
Solar Receptacle Co., Melrose Park, Ill.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Wheeling Corrugating Co., Wheeling, W. Va.
Witt Cornice Co., 2118 Winchell Ave., Cincinnati

METALLIC SOAPS (see STEARATES)

METERS (see INSTRUMENTS)

METHANOL (Synthetic)

Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.

METHYL ANTHRANILATE
(see also Aromatic Chemicals)

Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours, Wilmington, Del.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Florasynth Labs., Olmstead & Starling Aves., N. Y.
A. Maschmeijer, Jr., Inc., 45 W. 16th St., N. Y.

METHYL CELLULOSE

Dow Chemical Co., Midland, Mich.
Hercules Powder Co., Wilmington, Del.
General Dyestuffs Corp., 435 Hudson St., N. Y.

METHYL SALICYLATE (Artificial Wintergreen)
(see also Aromatic Chemicals)

Dow Chemical Co., Midland, Mich.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Heyden Chemical Corp., 50 Union Sq., N. Y.
Merck & Co., Rahway, N. J.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis

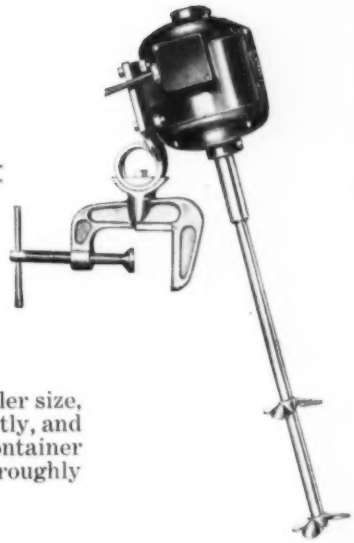
MILLS, COLLOID (See Colloid Mills)



Hy-Speed EQUIPMENT

for SPEED and ECONOMY in the processing of

All Liquid Products . Oils . Chemicals . Acids . Etc.

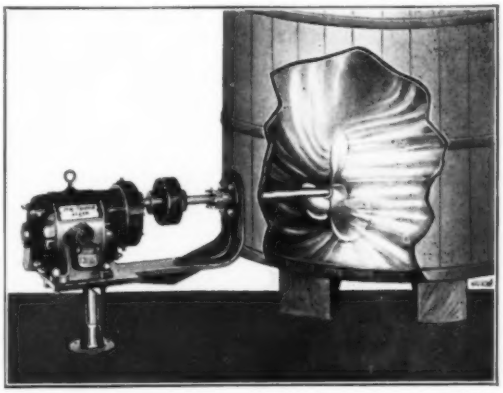


MIXING

A mixer with the most effective combination of power, speed, propeller size, pitch, and area — a mixer that is designed correctly, balanced perfectly, and constructed ruggedly — a mixer that clamps to any tank or other container you now have — is the one that will do your mixing jobs most thoroughly and at a low operating cost.

COMPLETE RANGE FOR ANY MIXING JOB

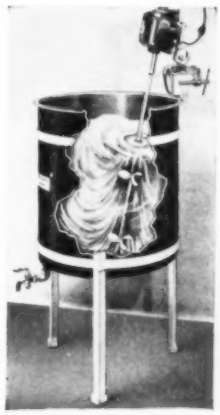
The many types and sizes of "Hy-Speed" Portable Electric Mixers shown and described in our catalog have been developed to cover the many liquid-mixing problems that had to be solved before it could truly be said that "Hy-Speed Mixers are best for every mixing job." In order that we may recommend the correct mixer for your particular mixing work, we should have some general information about your product, and the work to be done.



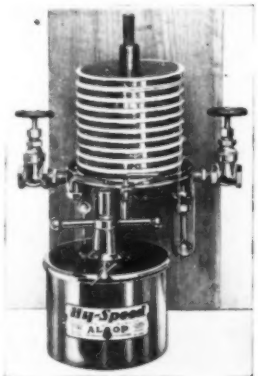
AGITATING

There are many processes involving agitation in which a side entering propeller member is desirable or even absolutely essential. The proper engineering of such installations is equally essential for the achievement of exact predetermined results.

MIXING UNITS



Complete Mixing Units consisting of Alsop Glass Coated Tank with Hy-Speed Mixer.



Sealed Disc Filter for pipe line connection. Made of Brass, Stainless Steel, Monel, Iron, etc.

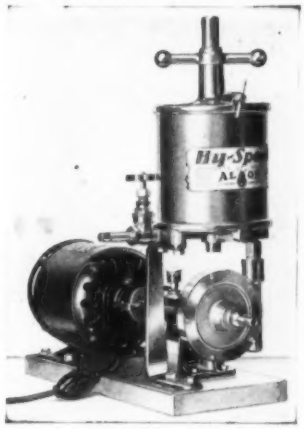
FILTERING

For sediment-free, attractive-looking liquid products

If you're intent on turning out a liquid that is absolutely sediment-free (and will stay that way)—a product that really stands out in attractiveness, you'll be interested in the results obtained with Hy-Speed Ultra Fine Disc Filters.

Hy-Speed Asbestos Discs, the filtering media used, remove every bit of cloud and minute foreign matter and produce a clear brilliant liquid.

Hy-Speed Filters are available in all sizes for any filtering capacity you desire from 1 G. P. M. to 60 G. P. M.



Sealed-Disc Filter, Leak and Vapor Proof. Capacities 1 to 60 gallons per minute.





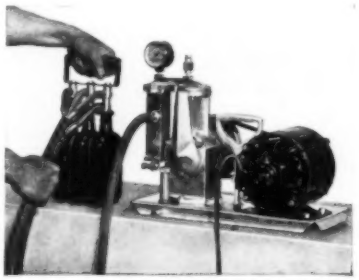
ABOVE improved Siphon Filler. RIGHT, Portable Vacuum Filler.

BOTTLE FILLING

Any size or type container from 1 dram up to gallons

ALSO CANS

We make gravity, portable vacuum, syphon, and semi-automatic vacuum filling machines. In our complete line of filling machines there is one of the right type and capacity to efficiency handle any production large or small from a few dozen per hour to twenty-five thousand per eight-hour day.



Vacuum Filler. Compact, Fast, Foolproof.

CAPPING

Assures positively air-tight leakproof screw caps of all shapes, styles or sizes

If you are using screw caps on your bottles, cans, or other containers, here's an inexpensive, simplified method of tightening them absolutely securely.

The Hy-Speed Portable Screw Capper is a positive safeguard against waste and rejected shipments caused by leaky containers that have been capped by uncertain, haphazard methods.

HANDLES ANY SIZE CAP

Instantly adjustable for handling any size cap, the unit is ideal for steady production work or for numerous capping jobs in your plant involving a large variety of caps and bottle sizes and styles.

COMPACT . . . SIMPLIFIED . . . INEXPENSIVE

The unit is compact and self contained; it is portable and can be used anywhere in the plant as necessity requires; it is built for continuous duty and costs but a few cents a day to operate.

The machine can be quickly and very accurately adjusted so that any cap can be put on with the exact degree of tightness desired.

Convenient stationary or portable wheeled stands are available.

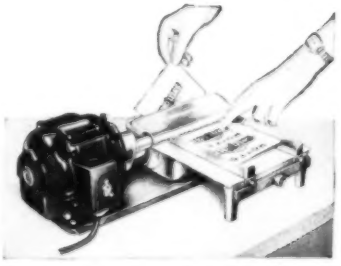




Handles any size, shape or type label put onto containers or other articles.

LABELING

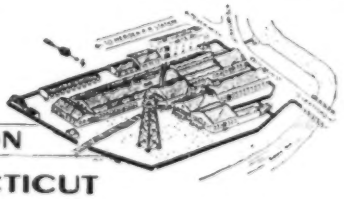
The Hy-Speed Labelit applies to any label up to 8" wide, a smooth even coating of glue or gum, of just the right thickness so that the label will adhere quickly and perfectly to the container or package without any excess glue squeezing out around the edges to spoil or mar the appearance of the finished product. It handles any and all labels without any adjustments or changes of any kind; gear driven for dependability, completely covered for cleanliness; quickly disassembled for easy and thorough cleaning; it is practical for a few dozen or for thousands of labels a day.



Showing simplicity of operation in putting glue on any labels.

ALSOP

ENGINEERING CORPORATION



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1 WEST STREET

MILLS, SOAP POWDER (see SOAP MACHINERY & GRINDING MACHINERY)

MILLS, TOILET SOAP (see SOAP MACHINERY)

MINERAL OIL, WHITE (see WHITE MINERAL OIL)

MINERAL SOAP STOCK (see PETROLATUM)

MIRBANE OIL (Nitrobenzene)
(see also Essential Oils)

Calco Chemical Co., Bound Brook, N. J.
Dodge & Olcott Co., 180 Varick St., N. Y.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Merck & Co., N. Y.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
National Aniline & Chemical Co., 40 Rector St., N. Y.
Naugatuck Aromatics, Inc., 254 Fourth Ave., N. Y.

MIXERS (Portable)

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Products Co., 15 Park Row, N. Y. (Used)
Eastern Engineering Co., 45 Fox St., New Haven, Conn.
Ertel Eng. Co., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Frank B. Lomax Co., 365 W. Oak St., Chicago
Mixing Equipment Co., Inc., 1067 Garson Ave., Rochester, N. Y.
Patterson Fdy. & Mch. Co., E. Liverpool, O.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.

MIXING MACHINERY (Change Can)

Abbe Engineering Co., 50 Church St., N. Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Arthur Colton Co., Detroit, Mich.
Consolidated Products Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machy. Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Kent Machine Works, 39 Gold St., Brooklyn
Mixing Equipment Co., Inc., 1067 Garson Ave., Rochester, N. Y.
Patterson Foundry & Mch. Co., E. Liverpool, Ohio
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy., Co., York, Pa.
Chas. Ross & Son Co., 150 Classon Ave., Brooklyn
Waterville Fndry. & Machine Co., Waterville, N. Y.

MIXING MACHINERY (Dry Products)

Abbe Engineering Co., 50 Church St., N. Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Products Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
B. F. Gump Co., 412 S. Clinton St., Chicago
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Lancaster Iron Works, Lancaster, Pa.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Prater Pulverizing Co., 1829 S. 55th Ave., Chicago
Read Machy. Co., York, Pa.
Robinson Mfg. Co., Muncy, Pa.
Chas Ross & Son Co., 150 Classon Ave., Brooklyn
Sprout Waldron & Co., Muncy, Pa.

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SEALED GEAR HOUSING

KEEPS DIRT OUT, LUBRICANT IN

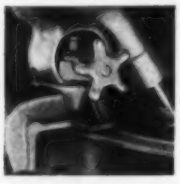
This improved construction removes danger of mixer gears running dry and wearing out. Insures added years of service because gears are always properly lubricated. Prevents leakage. Cuts down maintenance to semi-annual or annual servicing.

Pre-lubricated sealed ball bearings, an exclusive "LIGHTNIN" feature, protect both your mixer and your product. Dirt and grit cannot get into the bearing or working mechanism—grease cannot get out.



NEW HAND CLAMP (At Right)

Convenient new hand clamp permits positioning of mixers to any desired angle without use of wrenches. Retains all desirable features of ball and socket clamp. Exclusive patented double wedge with hand wheel tightens unit more firmly and rigidly and cannot work loose. Wedge cannot rust or "freeze." Can be installed on your present "LIGHTNIN" Mixer. Write for prices on clamping kit.



Regardless of shape, size, or material, you can make a complete mixing unit out of any tank or vessel in your plant with a "LIGHTNIN" Propeller Type Mixer.

STURDY, POWERFUL "LIGHTNIN" MIXERS REDUCE COSTS ON

Agricultural Insecticides	Cleaning Fluids	Floor Products	Household Ammonia	Liquid Soap	Polishes
Anti-Freeze Products	Deodorizing Products	Germicides	Laundry Bleach	Moth Products	Theatre Sprays
Antiseptics	Disinfectants	Glycerin	Liquid Scrub Soap	Oil Soap	Stock Sprays and Dips

PORTABLES

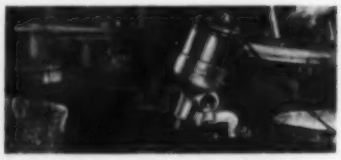
"LIGHTNIN" GEAR DRIVE MIXERS (¼ to 10 H. P.) operating at low speed (400 R.P.M.) are generally recommended for fairly viscous liquids, ranging from 500 to 4,000 centipoises, especially efficient for mixing liquid soaps, glycerin, polishes, light waxes, etc. All gears are "sealed in grease." We have run mixers over 17,000 hours continuous duty (equivalent to 10 years' average service), with no attention whatsoever, with no perceptible wear on parts.





"LIGHTNIN" DIRECT DRIVE PORTABLES (⅛ to 10 H. P.) are recommended for lighter liquids, dissolving materials or suspending solids.

Operating at a propeller speed of 1,150 or 1,750 R.P.M., these versatile mixers can mix remarkably large quantities of liquids.



FOR MIXING LARGE QUANTITIES OR TO MEET SPECIAL CONDITIONS

"LIGHTNIN" TRIPOD MIXERS

These top entering units are built for closed tank, vacuum or pressure work. Geared or direct drive. Built for heavy duty service.





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Are available in four different types in sizes from 1/3 to 25 H. P. geared for direct drive, corrosion resistant and motorless styles. Ruggedly built.

Send for this New "LIGHTNIN" Literature. You need it to keep up to date on mixing.

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Bulletin B-67—Laboratory Mixers
MIXING PROBLEM WORK SHEET, Mi-11

MIXING MACHINERY, Dry Products (Contd.)

Stephens-Adamson Mfg. Co., Aurora, Ill.
F. J. Stokes Machine Co., Philadelphia, Pa.
Struthers-Wells Corp., Warren, Pa.
Aurelio Tanzi Engineering Co., 430 Jefferson St., Bklyn.

MIXING MACHINERY (General)

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Baker-Perkins Co., 250 Park Ave., N. Y.
Beach-Russ Co., 50 Church St., N. Y.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Arthur Colton Co., Detroit
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co , 1144 Harrison Ave., Cincinnati
Eastern Engineering Co., 45 Fox St., New Haven
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
B. F. Gump Co., 431 S. Clinton St., Chicago
Houchin Machinery Co., Hawthorne, N. J.
S. Howes Co., Inc., Silver Creek, N. Y.
Huber Machine Co., 259—46th St., Brooklyn
Kent Machine Works, 37 Gold St., Brooklyn
Lancaster Iron Works, Lancaster, Pa.
J. M. Lehmann Co., 248 West Broadway, N. Y.
Littleford Bros., 443 E. Pearl St., Cincinnati
Mixing Equipment Co., 1067 Garson Ave., Rochester, N. Y.
Patterson Foundry & Mach. Co., East Liverpool, Ohio
Pfaudler Co., 89 East St., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Prater Pulverizing Co., 1829 S. 55th Ave., Chicago
Read Machinery Co., York, Pa.
Robinson Mfg. Co., Muncy, Pa.
Chas. Ross & Son Co., 150 Classon Ave., Brooklyn
Sowers Mfg. Co., 1296 Niagara St., Buffalo, N. Y.
Sprout Waldron & Co., Muncy, Pa.
Stephens-Adamson Mfg. Co., Aurora, Ill.
F. J. Stokes Mach. Co., Philadelphia, Pa.
Struthers-Wells Co., Warren, Pa.
Turbo Mixer Corp., 247 Park Ave., N. Y.
Waterville Foundry & Machine Co., Waterville, N. Y.

MIXING TANKS (see TANKS, WOODEN, STEEL and GLASS, MIXING)

MONEL METAL EQUIPMENT

Eastern Engineering Co., New Haven, Conn. (Pumps)
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Houchin Machinery Co., Hawthorne, N. J.
International Nickel Co , 67 Wall St., N. Y.
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Littleford Bros., 453 E. Pearl St., Cincinnati
Pfaudler Co., 89 East St., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Sprout Waldron & Co., Muncy, Pa.
F. J. Stokes Machine Co., Phila.
Wurster & Sanger, Inc., 5201 Kenwood Ave., Chicago

MONOCHLORBENZENE (see SOLVENTS, ORGANIC)

MONTAN WAX (see WAXES)

MOP HANDLES

Algoma Mfg. Co., Green Bay, Wis.
Amer. Standard Mfg. Co., 2509 S. Green St., Chicago
Stanley H. Coffin, 12 Pearl St., Boston
Continental Car-Na-Var Corp., Brazil, Ind.
Eagle Woodenware Mfg. Co., Hamilton, O.
Economy Mop Wringer Co., 1944 W. 21st St., Chicago
Erie Mop & Wringer Co., East Rochester, N. Y.
Howard Dustless Duster Co., Boston
W. E. Kautenberg Co., Freeport, Ill.
Massasoit Mfg. Co., 8 White St., N. Y.
Rubon Wood Finishing & Prods. Co., 500 W. 7th St., Kansas City, Mo.
Silver-Chamberlin Co., Clayton, N. Y.
White Mop Wringer Co., Fultonville, N. Y.

MOP WRINGERS AND PAILS

Stanley H. Coffin, 12 Pearl St., Boston
Colson Mfg. Co., Elyria, O.
Dobbins Mfg. Co., Elkhart, Ind.
Eagle Woodenware Mfg. Co., Hamilton, Ohio
Economy Mop Wringer Co., 1944 W. 21st St., Chicago
Geuder, Paesche & Frey, Milwaukee, Wis.
Illinois Duster Co., 1944 Webster Ave., Chicago
S. C. Lawlor Co., 122 N. Aberdeen St., Chicago
Muskegon Sanitary Supply Co., Muskegon Heights, Mich.
Palmer Prods., Inc., Waukesha, Wis.
Sanitary Mfg. Co., 926 Ft. Wayne Ave., Indianapolis
Sweet Mop Co., 1913 Fremont Ave., South Pasadena, Cal.
Tarbox Lever Corp., 61 Chandler St., Buffalo
White Mop Wringer Co., Fultonville, N. Y.

MOPPING TANKS AND TRUCKS

Eagle Woodenware Mfg. Co., Hamilton, O.
Economy Mop Wringer Co., 1944 W. 21st St., Chicago
S. C. Lawlor Co., 122 N. Aberdeen St., Chicago
Palmer Prods., Inc., Waukesha, Wis.
White Mop Wringer Co., Fultonville, N. Y.

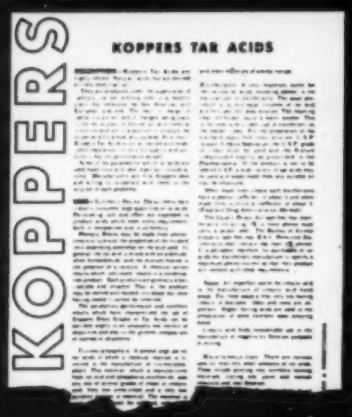
MOPS

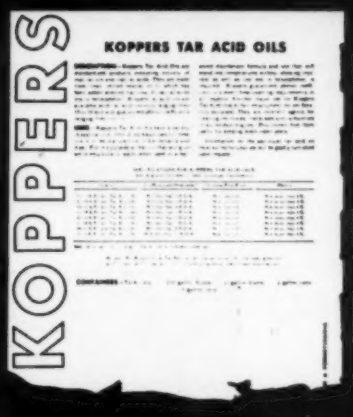
Alabama Broom & Mattress Co., Huntsville, Ala.
Algoma Mfg. Co., Green Bay, Wis.
Amer. Standard Mfg. Co., 2509 S. Green St., Chicago
Burdett-Rose Mfg. Co., 6100 Independence Rd., Kansas City, Mo.
California Cotton Mills Co., Oakland, Calif.
Chattanooga Broom & Mop Co., Chattanooga, Tenn.
Clark Bros. Mfg. Co., 34 N. Front St., Phila.
Stanley H. Coffin, 12 Pearl St., Boston, Mass.
Continental Car-Na-Var Corp., Brazil, Ind.
Eagle Woodenware Mfg. Co., Hamilton, O.
Howard Dustless Duster Co., Boston, Mass.
W. E. Kautenberg Co., P. O. Box 255, Freeport, Ill.
Klenzall Mfg. Co., Atlanta, Ga.
Palmer Prods., Inc., Waukesha, Wis.
Pioneer Mfg. Co., Cleveland, Ohio
Rubon Woodfinishing & Prod. Co., 500 W. 7th St., Kansas City, Mo.
Sanitary Mfg. Co., 926 Ft. Wayne Ave., Indianapolis
Schaefer-Wetcher Co., 445 W. Jefferson Ave., Detroit
Silver-Chamberlain Co., Clayton, N. J.
T. C. Smyth Mfg. Co., Union City, Ind.
Sweet Mop Co , 1913 Fremont Ave., South Pasadena, Cal.
Tate Mfg. Co., Boston, Mass.
M. J. Toohey & Co., Fall River, Mass.
Tuscaloosa Mills, Tuscaloosa, Ala.
Tu-Way Products Co., 445 W. Jefferson Ave., Detroit
Yocma Mills, Water Valley, Miss.

MOSQUITO LARVICIDE

Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire of Mo., St. Louis
Cary Mfg. Co., Joliet, Ill.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Cripman Chemical Co., Bound Brook, N. J.
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.

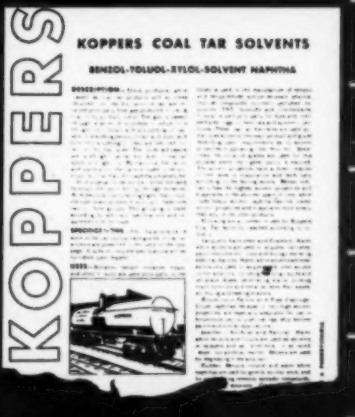
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These data sheets contain the latest specifications on these materials for the manufacture of soaps, disinfectants and other materials, and complete suggestions about the uses to which they may be put.

Copies should be in your technical and purchasing files. Write for them.



This booklet lists . . . and describes . . . a score of chemicals derived from coal, many of which have not been available before in commercial quantities in this country, but which are now offered by Koppers. You may find in this material some important suggestions for use in your processes.

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MOSQUITO LARVACIDE (Contd.)

James Huggins & Son, 239 Medford St., Malden, Mass.
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
McCormick & Co., Inc., Baltimore, Md.
Merck & Co., Rahway, N. J.
Palmer Prods., Inc., Waukesha, Wis.
Peck's Products Co., St. Louis
Shell Oil Co., 50 W. 50th St., N. Y.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
Thompson-Hayward Chemical Co., Kansas City, Mo.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Velsicol Corp., 120 E. Pearson St., Chicago
White Tar Co., Kearny, N. J.

MOTH BAGS

Amer. Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Clopay Co., Cincinnati
Kennedy Car Liner Co., Indianapolis
LeMontre Co., Cincinnati
Rosette Co., 200 Tillary St., Brooklyn
White Tar Co., Kearny, N. Y.

MOTH PROOFING COMPOUNDS

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
Barrett Co., 40 Rector St., N. Y.
Baird & McGuire, Inc., Holbrook, Mass.
Baird & McGuire, Inc., of Mo., St. Louis
Cenol Co., 4250 N. Crawford Ave., Chicago
Chemical Supply Co., 2450 Canal Rd., Cleveland
Delta Chemical Co., 4 Payson Ave., N. Y.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Edelman Co., 6249 S. St. Lawrence Ave., Chicago
Fuld Bros., Inc., 702 S. Wolfe St., Baltimore
General Dyestuffs Corp., 435 Hudson St., N. Y.
R. W. Greeff & Co., 10 E. 40th St., N. Y.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Maywood Pest Exterminators, Maywood, Ill.
Merck & Co., Rahway, N. J.
Midway Chemical Co., 5235 W. 65th St., Chicago
Peck's Products Co., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Phila.
John Powell & Co., 114 E. 32nd St., N. Y.
Reilly Tar & Chemical Corp., Indianapolis
Reliable Chemical Co., P. O. Box 361, Passaic, N. J.
Solvay Sales Corp., 40 Rector St., New York
Thompson-Hayward Chemical Co., 2915 S. W. Blvd., Kansas City, Mo.
Trojan Products & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Joseph Turner Co., Ridgefield, N. J.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
White Tar Co., Kearny, N. J.
Whitmire Research Corp., 339 S. Vandeventer, St Louis

MOTH SPRAYS (see HOUSEHOLD INSECTICIDES, LIQUID)

MOTTLED SOAPS

Hewitt Soap Co., Dayton, O.
Lightfoot Schultz Co., Hoboken, N. J.
Los Angeles Soap Co., Los Angeles
National Soap Co., P. O. Box 1613, Tacoma, Wash.
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
M. Werk Co., Cincinnati, O.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

MOUSE SEEDS (see POISONED SEEDS)

MUSKS, ARTIFICIAL (see AROMATIC CHEMICALS)

MYRISTIC ACID (See also FATTY ACIDS)

Woburn Degreasing Co. of N. J., 12000 Harrison Ave., Harrison, N. J.

NAPHTHA (see SOLVENT NAPHTHA)

NAPHTHALENE

American-British Chem. Supplies, 180 Madison Ave.,
Barrett Co., 40 Rector St., N. Y.
S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
Dominion Tar & Chem. Co., Ltd., Montreal
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
William E. Jordan & Bro., 2590 Atlantic Ave., **Brooklyn**
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Neville Co., Pittsburgh
Reilly Tar & Chem. Corp., Indianapolis
Republic Chemical Co., 94 Beekman St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Standard Naphthalene Prods. Co., S. Kearny, N. J.
White Tar Co., Kearny, N. J.

NAPHTHALENE SULFONATES

E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del
General Dyestuffs Corp., 435 Hudson St., N. Y.
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Prods Co., Harrison, N. J.
Pennsylvania Refining Co., Butler, Pa.
Richard Sales Corp., Jersey City, N. J.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.

NAPHTHENIC ACIDS (and Sulfonic Sludges)

Advance Solvents & Chem. Co., 245—5th Ave., N. Y.
Atlantic Refining Co., 260 S. Broad St., Philadelphia
General Petroleum Corp., 108 W. 2nd St., Los Angeles
Hummel Chem. Co., 90 West St., N. Y.
Nuodex Prods. Co., Elizabeth, N. J.
Pennsylvania Refining Co., Butler, N. J.
Petroleum By-Products Co., 15 Whitehall St., N. Y.
Petroleum Specialties, Inc., 570 Lexington Ave., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Sherwood Refining Co., 1 W. Forest Ave., Englewood, N. J.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.

NICKEL-CLAD EQUIPMENT (see also SOAP MACHINERY)

Consolidated Prods. Co., 15 Park Row, N. Y. **(Used)**
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Houchin Machinery Co., Hawthorne, N. J.
International Nickel Co., 67 Wall St., N. Y.
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Littleford Bros., 453 E. Pearl St., Cincinnati
Lukens Steel Corp., Coatesville, Pa.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
F. J. Stokes Machine Co., Philadelphia
Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

NICOTINE COMPOUNDS

California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
E. I. Du Pont de Nemours, Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Hood River Spray Co., Hood River, Ore.
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
Sanocide Spray Co., Fennville, Mich.
Tobacco By-Products & Chem. Corp., Louisville

NITRE CAKE

Amer. Cyanamid & Chem. Co., 30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Chas. Lennig & Co., 222 W. Washington Sq., Philadelphia
Monsanto Chemical Co., 1724 S. 2nd St., St. Louis
E. M. Sergeant Pulp & Chem., 350 Fifth Ave., N. Y.

NITROPARAFFINS

Commercial Solvents Corp., 17 E. 42nd St., N. Y.

NON-SOAP DETERGENTS (see Detergents, Synthetic)

NOVELTY SOAPS

Armour & Co., 1355 W. 31st St., Chicago
Illustrated Soap Co., 151 W. 25th St., N. Y.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Unique Soaps, P. O. Box No. 61, Covington, Ky.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

ODORLESS KEROSENE (see PETROLEUM BASE, DEODORIZED)

OIL HYDROGENATION PLANTS

William Garrigue Co., 9 S. Clinton St., Chicago
Alan Porter Lee, 136 Liberty St., N. Y.
Robinson, Butler, Hemingway & Co., Bound Brook, N. J.
Struthers Wells Titusville Corp., Warren, Pa.
Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

OIL MILL EQUIPMENT

V. D. Anderson Co., 1935 W. 96th St., Cleveland
Bauer Bros. Co., Springfield, O.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Buckeye Iron & Brass Works, Dayton, O.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
French Oil Mill Mach. Co., Piqua, O.
William Garrigue Co., 9 S. Clinton St., Chicago
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Robinson, Butler, Hemingway Co., Bound Brook, N. J.
Ernest Scott & Co., Fall River, Mass.
Sprout Waldron & Co., Muncy, Pa.
Struthers-Wells Co., Warren, Pa.
Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

OIL SOAP (see POTASH SOAPS)

OLEIC ACID (see RED OIL)

OLIVE OIL (Commercial)
(see also Brokers and Dealers)

Irving R. Boody & Co., 99 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Eastern Industries, Inc., Ridgefield, N. J.
W. R. Grace & Co., 7 Hanover Sq., N. Y.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
J. H. Redding Co., 17 Battery Pl., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

OLIVE OIL FOOTS
(see also Brokers and Dealers)

T. G. Cooper & Co., 47 N. 2nd St., Philadelphia
Eastern Industries, Inc., Ridgefield, N. J.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
J. H. Redding Co., 17 Battery Pl., N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

OLIVE OIL SOAPS (see CASTILE SOAPS, TEXTILE SOAPS)

ORANGE OIL (see ESSENTIAL OILS)

ORTHODICHLORBENZENE (see PARADICHLORBENZENE)

OXALIC ACID
(see also Dealers)

Amer. Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Faesy & Besthoff, Inc., 22 E. 40th St., N. Y.
General Chemical Co., 40 Rector St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mallinckrodt Chemical Wks., St. Louis, Mo.
Merck & Co., Rahway, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Tamms Silica Co., 228 N. La Salle St., Chicago
Jos. Turner & Co., Ridgefield, N. J.
Victor Chemical Works, 141 W. Jackson Blvd., Chicago

PACKAGING MACHINERY (see CARTONING MACHY., FILLING MACHY., WEIGHING EQUIP., WRAPPING MACHY.)

PAILS (Fibre) (see BARRELS, FIBRE)

PAILS (Steel)

American Can Co., 230 Park Ave., N. Y.
Bennett Mfg. Co., 14600 Princeton Ave., Chicago
Cans, Inc., 3217 W. 47th Pl., Chicago
Central Can Co., 2415 W. 19th St., Chicago
Fein's Tin Can Co., Bush Terminal, Brooklyn
Geuder, Paeschke & Frey Co., Milwaukee
National Can Co., 110 E. 42nd St., N. Y.
National Steel Barrel Co., 3860 E. 91st St., Cleveland
Pittsburgh Can Co., Pittsburgh, Pa.
Pressed Steel Tank Co., 5717 Greenfield Ave., Milwaukee
F. C. Thornton Co., 6712 Union Ave., Cleveland
John Tragreser Steam Copper Works, Maspeth, L. I.
Vulcan Stamping & Mfg. Co., 4036 W. Lake St., Chicago
Wheeling Corrugating Co., Wheeling, W. Va.
Wilson & Bennett Mfg. Co., 6532 S. Menard Ave., Chicago

PAILS (Wooden)

Beaver Mills, Keene, N. H.
Eagle Woodenware Mfg. Co., Hamilton, O.
Gambrinus Cooperage Works, Louisville
Impervious Package Co., Keene, N. H.
Menasha Woodenware Co., Menasha, Wis.
Richmond Cedar Works, Richmond, Va.

PALM KERNEL OIL
(see also Brokers and Dealers)

Balfour Guthrie & Co., 67 Wall St., N. Y.
Irving R. Boody & Co., 99 Wall St., N. Y.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Spencer Kellogg & Sons, Buffalo, N. Y.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco, Calif.
J. H. Redding Co., 17 Battery Pl., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Zimmerman Alderson Carr Co., 25 Broadway, N. Y.

PALM OIL
(see also Brokers and Dealers)

Balfour, Guthrie & Co., 67 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Ridgefield, N. J.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
J. H. Redding Co., 17 Battery Pl., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Stein, Hall & Co., 285 Madison Ave., N. Y. (Sumatra)
Zimmerman Alderson Carr Co., 25 Broadway, N. Y.

PAPER CANS (see CANS)

PAPER (Corrugated) (see BOXES, CORRUGATED)

PAPER CUPS

F. N. Burt Co., Batavia, N. Y.
Individual Drinking Cup Co., Easton, Pa.
Sutherland Paper Co., Kalamazoo, Mich.

PAPER (Fancy Wrapping)

Aluminum Co. of America, Gulf Bldg., Pittsburgh
Beekman Paper & Card Co., 137 Varick St., N. Y.
A. M. Collins Mfg. 1518 Walnut St., Phila.
Louis Dejonge & Co., 155—6th Ave., N. Y.
C. J. Fox Co., 236 Abron St., Providence, R. I.
Fox Paper Co., Lockland, Cincinnati, O.
Hampden Glazed Paper & Card Co., Holyoke, Mass.
Henderson Lithographing Co., Cincinnati
Keller-Dorian Paper Co., 516 W. 34th St., N. Y.
New England Card & Paper Co., Springfield, Mass.
Pictorial Package Co., Aurora, Ill.
Marquette Lithograph Co., 730 N. Franklin St., Chicago
Nashua Gummed & Coated Paper Co., Nashua, N. H.
Potomac Lithograph Mfg. Co., Washington, D. C.
Richardson Co., Lockland, O.
Geo. Schmitt & Co., 253 Maujer St., Brooklyn
Louis Schulman Co., 465 Broome St., N. Y.
Strobridge Lithographing Co., Cincinnati
Sylvania Industrial Corp., 122 E. 42nd St., N. Y.
Tamm & Co., 66 Duane St., N. Y.
Transcello Paper Co., Milwaukee, Wisc.
U. S. Printing & Lithographing Co., Cincinnati, O.
Whiting-Paterson Co., Inc., 320—13th St., Philadelphia
Chas. W. Williams & Co., Inc., 309 Lafayette St., N. Y.

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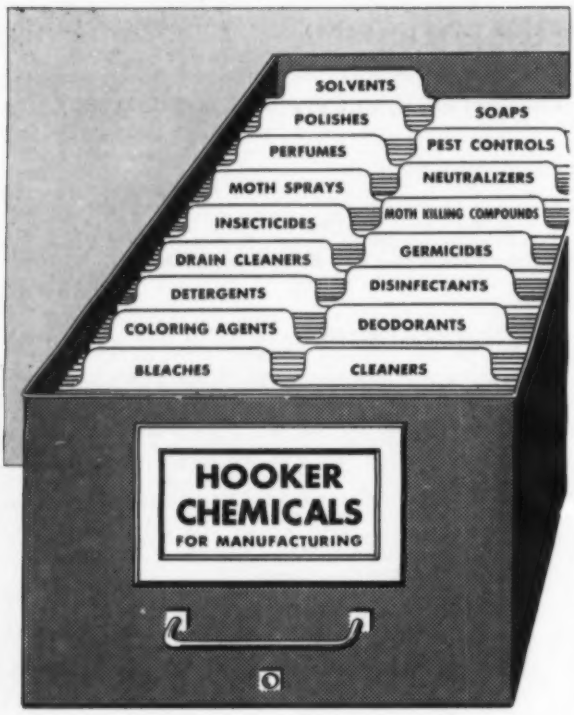
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PAPER TOILET SEAT COVERS

Morton Mfg. Co., 5105 W. Lake St., Chicago
National Towel Bendon Ltd., 12 Stewart St., San Francisco
Sani-Gard Cover Co., 411 W. 5th St., Los Angeles

PAPER TOWELS and TISSUES

Brown Co., Portland, Me.
Hoberg Paper & Fibre Co., Green Bay, Wisc.
Scott Paper Co., Chester, Pa.
Straubel Paper Co., Green Bay, Wis.
Towlsaver, Inc., 2816 E. 11th St., Los Angeles
U. S. Envelope Co., Lititz, Pa.
Victoria Paper Mills Co., Fulton, N. Y.

PARA BLOCKS **(see DEODORIZING BLOCKS)**

PARADICHLORBENZENE

Delta Chemical Mfg. Co., 2101 Washington Blvd., Baltimore
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del.
Hooker Electrochemical Co., Niagara Falls, N. Y.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Phillipp Bros., 70 Pine St., N. Y.
Rid-O-Moth Corp., South Kearny, N. J.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.

PARAFFIN

Atlantic Refining Co., 260 S. Broad St., Philadelphia
Borne-Scrymser Co., 17 Battery Pl., N. Y.
E. A. Bromund Co., 258 Broadway, N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
Gulf Refining Co., Pittsburgh
Innis, Speiden & Co., 117 Liberty St., N. Y.
Lenape Trading Co., 225 Broadway, N. Y.
George H. Lincks, 155 John St., N. Y.
Oil States Petroleum Co., 233 Broadway, N. Y.
Pennsylvania Refining Co., Butler, Pa.
Sherwood Refining Co., Englewood, N. J.
Sinclair Refining Co., 630—5th Ave., N. Y.
Smith & Nichols, 121 Maiden Lane, N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co., (Ind.) 910 S. Michigan Ave., Chicago
Standard Oil Co., (N. J.) 26 Broadway, N. Y.
Standard Oil Co., (Ohio) Midland Bldg., Cleveland
Strohmeyer & Arpe Co., 139 Franklin St., N. Y.
Texas Co., 135 E. 42nd St., N. Y.

PARAFFIN OILS

Atlantic Refining Co., 260 S. Broad St., Philadelphia
Deep Rock Oil Corp., 155 N. Clark St., Chicago
Gulf Refining Co., Pittsburgh
Pennsylvania Refining Co., Butler, Pa.
Petroleum Specialties, Inc., 570 Lexington Ave., N. Y.
Sherwood Refining Co., Englewood, N. J.
Sinclair Refining Co., 630—5th Ave., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Skelly Oil Co., Skelly Bldg., Kansas City, Mo.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Standard Oil Co. (Ohio), Midland Bldg., Cleveland

PARAFORMALDEHYDE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

PARAFORMALDEHYDE (Contd.)

Heyden Chemical Co., 50 Union Sq., N. Y.
Mallinckrodt Chem. Wks., St. Louis
Merck & Co., Rahway, N. J.
Sherka Chemical Co., 86 Orange St., Bloomfield, N. J.

PARIS GREEN

Ansbacher-Siegle Corp., Rosebank, S. I.
Chipman Chemical Engineering Co., Bound Brook, N. J.
Dow Chemical Co., Midland, Mich.
E. I. Du Pont de Nemours Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Reichhold Chemicals, Inc., 105 Bedford Ave., Brooklyn
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sherwin-Williams Co., Cleveland

PASTES (see ADHESIVES)

PATCHOULI OIL (see ESSENTIAL OILS)

PEACH KERNEL OIL (see ESSENTIAL OILS)

PEANUT OIL
(see also Brokers and Dealers)

Irving R. Boody Co., 99 Wall St., N. Y.
Eastern Industries, Inc., Ridgefield, N. J.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Spencer Kellogg & Sons, Buffalo, N. Y.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
J. H. Redding, Inc., 17 Battery Place, N. Y.
E. M. Sergeant Pulp & Chem. Co., 350 Fifth Ave., N. Y.
Smith-Weihman Co., 15 Moore St., N. Y.
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill
Welch, Holme & Clark, 563 Greenwich St., N. Y.

PEARL ASH (see POTASSIUM CARBONATE)

PENNYROYAL OIL (see ESSENTIAL OILS)

PEPPERMINT OIL (see ESSENTIAL OILS)

PERCOLATORS (for pyrethrum, etc. extracting)

Brighton Copper Works, 2161 Kindel Ave., Cincinnati
Arthur Colton Co., Detroit, Mich.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Farlinger Rice Co., 56 N. 19th St., East Orange, N. J.
First Machy Corp., 819 E. 9th St., N. Y. (Used)
Karl Kiefer Machine Co., 919 Martin St., Cincinnati, O.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
F. J. Stokes Machine Co., Philadelphia

PERFUME DISSEMINATORS

Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Clifton Chemical Co., 247 Front St., N. Y.
Ellis Davidson Co., 40 W. 22nd St., N. Y.
Florence Art Co., 54 W. 3rd St., N. Y.
Fuld Bros., Inc., 702 S. Wolfe St., Baltimore
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Robinson Clay Prod. Co., 101 Park Ave., N. Y.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.

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"I can be a good wife—Army, Navy, Air Corps, or civilian. I can raise my children, sane among all the insanity. I can run my house, and make of it a haven for my friends, not an ivory tower for me.

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An Editorial, Reprinted from the January 15th issue of VOGUE.*

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van Ameringen-Haebler, Inc., 315 Fourth Ave., N. Y.
Aromatic Products, Inc., 15 E. 30th St., N. Y.
Bayonne Co., 404 Fourth Ave., N. Y.
Ph. Chaleyer, Inc., 160 E. 56th St., N. Y.
Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y.
Compagnie Duval, 121 E. 24th St., N. Y.
Compagnie Parento, Croton-on-Hudson, N. Y.
Gerard J. Danco, Inc., 333 Sixth Ave., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
Dow Chemical Co., Midland, Mich.
P. R. Dreyer Inc., 119 W. 19th St., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Felton Chemical Co., 603 Johnson Ave., Brooklyn
Firmenich & Co., 135 Fifth Ave., N. Y.
Florasynth Laboratories, 1513 Olmstead Ave., Bronx
Benj. French, Inc., 160 Fifth Ave., N. Y.
Fritzsche Brothers, Inc., 76 Ninth Ave., N. Y.
Fuld Bros., 702-710 S. Wolfe St., Baltimore
General Drug Co., 644 Pacific St., Bklyn., N. Y.
R. Gesell, Inc., 200 W. Houston St., N. Y.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Heine & Co., 54 Cliff St., N. Y.
Hymes Bro. Co., 37 Howard St., N. Y.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
Lanvoix Chem. Co., 549 W. Randolph St., Chicago
Pierre Lemoine, 67 Cortland St., N. Y.
Geo. Lueders & Co., 427 Washington St., N. Y.
Magnus, Mabee & Reynard, 16 Desbrosses St., N. Y.
A. Maschmeijer, Jr., Inc., 43 W. 16th St., N. Y.
Naugatuck Aromatics, 254 Fourth Ave., N. Y.
Neuman-Buslee & Wolfe, 224 W. Huron St., Chicago
New York Aromatics Co., 153 Waverly Pl., N. Y.
Norda Essential Oil & Chem. Co., 601 W. 26th St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
Polak's Frutal Wks., Inc., 36-14—35th St., L. I. City
Polak & Schwarz, Inc., 667 Washington St., N. Y.
Roure-DuPont, Inc., 366 Madison Ave., N. Y.
H. C. Ryland, Inc., 161 Water St., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Edwin Seebach Co., 912 Broadway, N. Y.
C. A. Seguin, 2141 W. North, Chicago
Sherwood Refining Co., Englewood, N. J.
Wm. G. Sibbach & So., 201 S. 2nd Ave., Maywood, Ill.
Standard Synthetics Co., 119 W. 25th St., N. Y.
Tombarel Products Corp., 12 E. 22nd St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.
Van Dyk & Co., 57 Wilkinson Ave., Jersey City, N. J.
Albert Verley, Inc., 232 E. Ohio St., Chicago

PETIT GRAIN OIL (see ESSENTIAL OILS)

PETROLATUM (Petroleum Jelly)

Atlantic Refining Co., 260 S. Broad St., Philadelphia
Borne-Scrymser & Co., 17 Battery Pl., N. Y.
Chesebrough Mfg. Co., 17 State St., N. Y.
Malone Oil Co., 2199 E. 18th St., Cleveland
Pennsylvania Refining Co., Butler, Pa.
Petroleum Specialties, Inc., 370 Lexington Ave., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Shell Oil Co., 50 W. 50th St., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Sherwood Refining Co., Englewood, N. J.
Sinclair Refining Co., 630 Fifth Ave., N. Y.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Standard Oil Co. (N.J.), 26 Broadway, N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

PETROLEUM BASES (for Agricultural Sprays, Horticultural Sprays, Cattle Sprays, Insecticides, Polishes, etc.)

American Mineral Spirits Co., 330 S. Mich., Chicago
Anderson-Prichard Oil Corp., Oklahoma City, Okla.
Atlantic Refining Co., 260 S. Broad St., Philadelphia
Beacon Oil Co., Everett, Mass.
Commerce Petroleum Co., 2923 Lock St., Chicago



Perfume Materials for manufacturers of soaps, deodorants, fly sprays, disinfectants, etc.

OILS GERANIUM . . . LAVENDER . . . ORRIS CONCRETE . . . PATCHOULI . . . PETITGRAIN . . . VETYVER . . . YLANG-YLANG, etc.

RESINOIDS BENZOIN . . . LABDANUM . . . MOUSSE DE CHENE . . . ORRIS . . . OPOPONAX . . . OLIBANUM . . . PERU . . . STYRAX . . . TOLU . . . TONKA, ETC.

PERFUMES FOR SOAPS, SPRAYS, DISINFECTANTS and INSECTICIDES. A COMPLETE SELECTION OF FLORALS AND FANCY BOUQUETS OR SPECIAL CREATIONS FOR YOUR INDIVIDUAL USE.

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L. J. Zollinger, *President*

12 East 22nd Street, New York, N. Y.

The market for insecticides made with

DEO-BASE

Reg. U. S. Pat. Off.

is an ever widening one

Complete freedom from kerosene odor is only one of the many reasons why, since 1931, the Insecticide Industry has endorsed DEO-BASE as the perfect carrier. Stability, balanced fractionation, sparkling clarity and assurance against staining are some others. Liquid insecticides made with DEO-BASE can be sold everywhere for use anywhere.

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Other Sonneborn quality products include

WHITE MINERAL OILS (U.S.P. and Technical).
PETROLEUM SULFONATES, sometimes termed Mahogany Soaps or Napthenic Acid Soaps, for emulsifying, solubilizing, dispersing, rust-inhibiting, fat splitting and many other important industrial applications. Also, soluble oil bases.
U.S.P. PETROLATUMS (Protopet).
PROTOWAX—Amorphous (micro-crystalline) wax for pharmaceutical and cosmetic formulation.

Your inquiries are solicited.

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CHICAGO — Refiners of White Mineral Oil & Petrolatum — LOS ANGELES

Refineries: Petrolia and Franklin, Pa.
Southwestern Distributors: Sonneborn Bros., Dallas, Texas
Canadian Representatives: Chas. Albert Smith Ltd., Toronto

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*Senco PHOSPHORUS PASTE

(Commonly called rat and roach paste)

1. **A rat and roach paste manufactured under exacting specifications.**
2. **Contains 2 per cent phosphorus in a microscopic state of subdivision.**
3. **This product is very effective against rats and mice, and several species of roaches.**
4. **Senco Brand Phosphorus Paste is sold only in *bulk*, to the *Pest Control Industry*, and to *Manufacturers* of *Insecticides*. It can be packaged in cans or tubes, and sold as YOUR BRAND of rat and roach paste.**

Quotations on request.
We also manufacture
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These grains are used to kill mice. They are not effective against rats.

Sennewald Drug Company, Inc.

EST. 1855

2723 Chouteau Avenue — St. Louis, Missouri

*Reg. U. S. Pat. Office.

PHOSPHORUS PASTE--PHOSPHORUS PASTE--PHOSPHORUS PASTE--PHOSPHORUS PASTE

PETROLEUM BASES (Contd.)

Deep Rock Oil Corp., 155 N. Clark St., Chicago
Empire Oil Co., Oil City, Pa.
Gulf Refining Co., Frick Annex, Pittsburgh
Indian Refining Co., Lawrenceville, Ind.
Oil Service Co., Warren, Pa.
Pennsylvania Refining Co., Butler, Pa.
Pennzoil Co., Oil City, Pa.
Shell Oil Co., 50 W. 50th St., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Sherwood Refining Co., Englewood, N. J.
Sinclair Refining Co., 630 Fifth Ave., N. Y.
Skelly Oil Co., Skelly Bldg., Kansas City, Mo.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Standard Oil Co. (N. J.), 26 Broadway, N. Y.
Sun Oil Co., 1608 Walnut St., Philadelphia
Texas Co., 135 E. 42nd St., N. Y.
Tidewater Oil Co., 11 Broadway, N. Y.

PETROLEUM BASE, Deodorized

Atlantic Refining Co, 260 S. Broad St., Philadelphia
Commerce Petroleum Co., 2923 Lock St., Chicago
Pennsylvania Refining Co., Butler, Pa.
Sherwood Petroleum Co., Englewood, N. J.
Sinclair Refining Co., 630-5th Ave., New York
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co (Ind.), 910 S. Michigan Ave., Chicago
Jos. Turner & Co., Ridgefield, N. J.

PETROLEUM ETHER (see ETHER)

PHENOL (Carbolic Acid)

Barrett Company, 40 Rector St., N. Y.
Dow Chemical Co., Midland, Mich.
Heyden Chemical Corp., 50 Union Sq., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis
Reilly Tar & Chem. Corp., Indianapolis

PHENOL-COEFFICIENT DETERMINATIONS (see CONSULTANTS)

PHENYL ACETIC ALDEHYDE (see AROMATIC CHEMICALS)

PHENYL ETHYL ALCOHOL (see AROMATIC CHEMICALS)

pH INDICATORS

Lamotte Chemical Prods., Dept. R., Towson, Baltimore
National Technical Labs., 820 Mission St., South Pasadena, Calif.
W. A. Taylor Co., 7300 York Rd., Baltimore

PHOSPHORUS PASTE

John Opitz, 50-14—39th St., Long Island City, N. Y.
Sennewald Drug Co., 2723 Chouteau Ave., St. Louis

PINE OIL

American Turp. & Tar Co., 810 S. Broad St., New Orleans
E. W. Colledge, General Sales Agent, Inc., P. O. Box 389, Jacksonville, Fla.



PHOSPHOROUS PASTE

for ROACHES *and* RATS

Out of more than 68 years experience we have produced PHOSPHOROUS PASTE to meet every demand and need.

J-O PASTE—TYPE "O"

1. Remains soft for a period of months after it is applied.
2. Embodies an attractive Lure for roaches and rats.
3. Does not form a hard surface-shell and is penetrable by insects at all times.
4. Is miscible with water in all proportions.
5. Is applicable to many different types of pest control work.
6. UNEXCELLED for the large specie of roach, such as the American roach, etc.

J-O PASTE—(REGULAR)

For the small specie of Roach (German roach, etc.) This product is UNEXCELLED. It has been used against this type of roach with phenomenal success for the past 68 years.

BOTH TYPES OF J-O PHOSPHOROUS PASTE USED EXTENSIVELY FOR ELIMINATION OF RATS.

Sold in bulk sizes for repackaging (packed in sizes from 1 pound cans to 450 gallon drums)

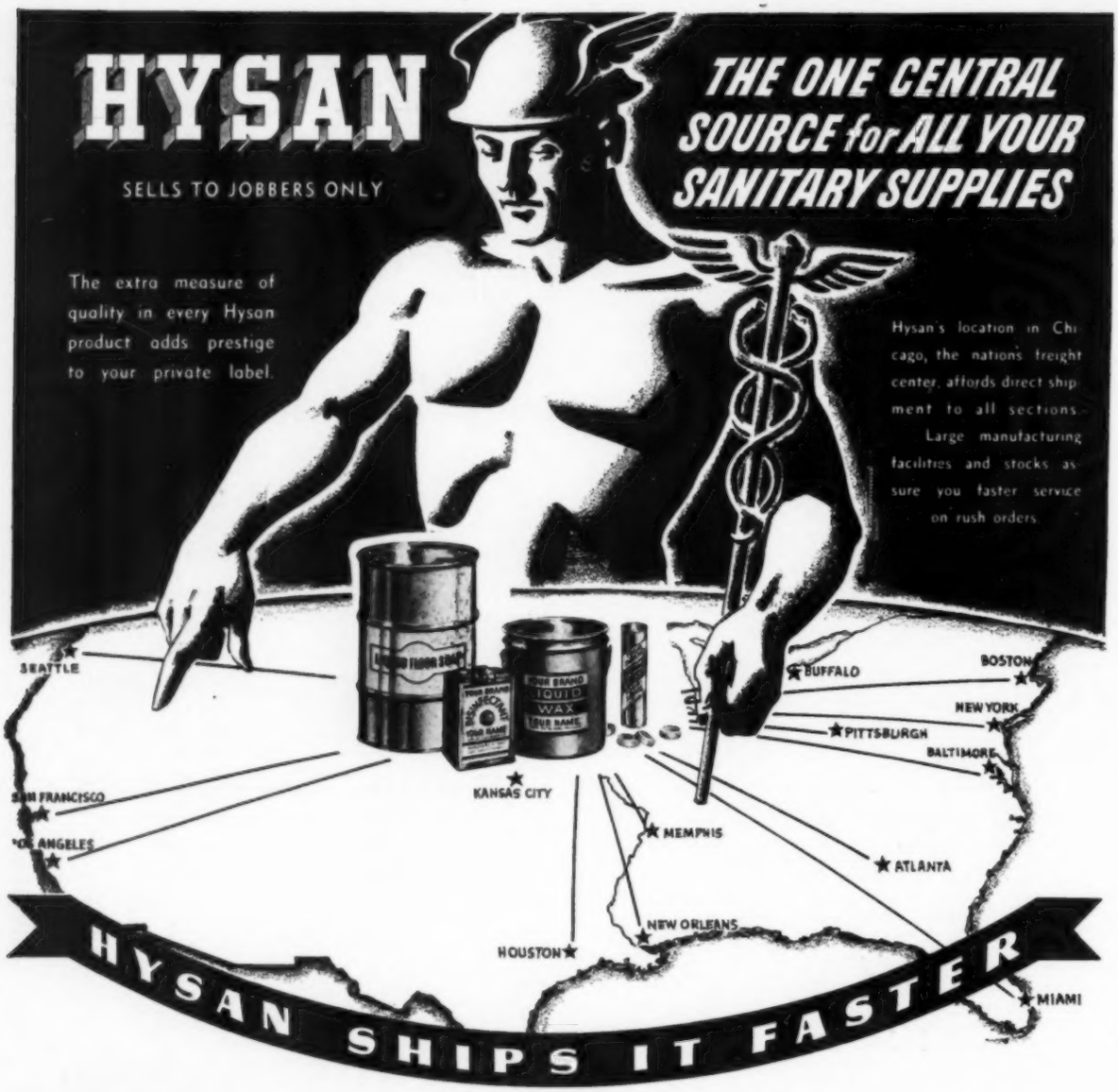
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Long Island City, New York

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PHOSPHOROUS PASTE *since* 1874



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When you buy all your supplies from Hysan, you save on freight, bookkeeping, inventory. You purchase many premium quality waxes, cleaners, etc. at ordinary prices. These savings add up.

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Our field men find out what items your trade wants. Then our chemists proceed to make them. It is a fact that Hysan gives its jobbers many more new profit makers to sell each year.

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The Hysan line is packaged to sell. It offers you many more deluxe containers. Private labels are more attractive. Hysan products have the eye appeal essential to the sale of quality goods.

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PINE OIL (Contd.)

Continental Turp. & Rosin Corp., Laurel, Miss.
Crosby Naval Stores, Picayune, Miss.
Dixie Pine Prods. Co, Hattiesburg, Miss.
Glidden Co., Naval Stores Div., Jacksonville, Fla.
Gulf Naval Stores Supply Co., Whitney Bldg., New Orleans
Hercules Powder Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
National Turp. Prods. Co., Gulf Point, Fla.
Newport Industries, Inc., 230 Park Ave., N. Y.
Phoenix Naval Stores Co., Gulfport, Miss.
Taylor, Lowenstein & Co., Mobile, Ala.
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.

PINE OIL DISINFECTANTS (see DISINFECTANTS, PINE OIL)

PINE NEEDLE OIL (see ESSENTIAL OILS)

PINE SCRUB SOAPS

American Soap & Washoline Co., Cohoes, N. Y.
Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour & Co., 1355 W. 31st St., Chicago
Banner Chemical Prod. Corp., 329 Mulberry St., Newark, N. J.
Baum's Castorine Co., Rome, N. Y.
Chemical Mfg. & Distrib. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Road, Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., Long Island City
Churchill Mfg. Co., Galesburg, Ill.
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2118 E. Susquehanna Ave., Phila.
Haag Laboratories, 6101 S. Mary St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Philadelphia
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Products Co., 58 E. Cullerton St., Chicago
Kranich Soap Co., 60 Richard St., Brooklyn
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Morgan Chemical Co., Harrisburg, Pa.
National Oil Prods. Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co., 7000 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Shawmut Specialty Co., 91 Bickford St., Boston
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
John T. Stanley Co., Inc., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Thompson & Hayward Chem. Co., Kansas City, Mo.
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 329 E. 29th St., New York
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
Chas. W. Young & Co., 1247 N. 26th St., Phila.

PINE TAR

E. W. Colledge, General Sales Agent, Inc., P. O. Box 389, Jacksonville, Fla.
Crosby Naval Stores, Picayune, Miss.
Glidden Co., Naval Stores, Div., Jacksonville, Fla.
Gulf Naval Stores Supply Co., Whitney Bldg., New Orleans
Hercules Powder Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
Newport Industries, Inc., 230 Park Ave., N. Y.
Taylor, Lowenstein & Co., Mobile, Ala.

PIPE COILS

Alloy Prods. Corp., 221 Madison St., Waukesha, Wis.
Brighton Copper Works, 2163 Western Ave., Cincinnati
Harrisburg Steel Corp., Harrisburg, Pa.
Hartford Tube Products Co., Hartford, Conn.
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
National Pipe Bending Co., New Haven, Conn.
Philadelphia Pipe Bending Co., 4100 N. 5th St., Phila.
Pittsburgh Pipe Coil & Bending Co., Etna, Pa.
Rempe Co., 340 N. Sacramento Blvd., Chicago
Whitlock Coil Pipe Co., Hartford, Conn.

PLANT SPRAYS (see Agricultural Insecticides)

PLASTIC PRODUCTS (See Attached Names on Page 89A)

PLATES, STEEL, CORROSION-RESISTANT (see STEEL, CORROSION-RESISTANT)

PLODDERS (See SOAP MACHINERY)

POISONED SEEDS

Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Exterminating Materials Co., 555 W. 22nd St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore, Md.
Hysan Products Co., 58 E. Cullerton St., Chicago
Sennewald Drug Co., 2723 Chouteau Ave., St. Louis
Soilicide Laboratories, Montclair, N. J.
W. R. Sweeney, Salisbury, Mo.
York Chemical Co., 424 W. 18th St., N. Y.

POLISH BASES (see PETROLEUM BASES)

POLISHES

Algoma Mfg. Co., Green Bay, Wis.
Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armiger Chem. Co., 2155 W. Hubbard St., Chicago
Banner Chemical Prod. Corp., 329 Mulberry St., Newark, N. J.
Baum's Castorine Co., 200 Mathew St., Rome, N. Y.
Buckingham Wax Corp., Borden Ave. and Van Dam St., L. I. City, N. Y.
Candy & Co., 2515 W. 35th St., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., L. I. City, N. Y.
Creco Co., Creco Bldg., L. I. City, N. Y.
Davies Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Elkay Products Corp., 323 W. 16th St., N. Y.
Empire Chem. Prods. Co., 12 Longworth Ave., Newark, N. J.
Federal Varnish Co., 333 S. Peoria St., Chicago
Fox Lake Wax Co., Fox Lake, Ill.
Franklin Research Co., 5134 Lancaster Ave., Philadelphia
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 Susquehanna Ave., Philadelphia
Haag Laboratories, 6101 S. May St., Chicago

NOW, More Than Ever, is Niagara Quality Important

Now, when time is of the essence in production, when results must be certain, when economy is a prime consideration, you will appreciate the quality and uniformity of Niagara products. They are backed by Niagara's fine reputation and the high caliber of Niagara's service

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Liquid, Flake or Solid

is famous for its purity—indicated by its remarkably white and uniform color. Liquid shipped in tank cars of 8,000 and 10,000 gallons.

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Unadulterated Paradichlorobenzene

is distinguished for the fine, white uniformity of its crystals. It is available in any size or type of container you prefer . . . and is produced to meet the most exacting demands.

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Calcined, Hydrated and Liquid 47%

is the first to be made in this country. Niagara has always set the standard for American manufacture of this product. Specify Niagara for quality and uniformity.

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PARA · CARBONATE OF POTASH

Liquid Chlorine

POLISHES (Contd.)

Harley Soap Co., Pierce & Orthodox Sts., Philadelphia
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hull Co., 305 Washington St., Brooklyn
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Products Co., 58 E. Cullerton St., Chicago
International Metal Polish Co., Indianapolis
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
J. S. Lawston Co., 8 Henshaw St., N. Y.
Lewis Soap & Chem. Co., Oakland, Calif.
M & H Laboratories, 2703-5 Archer Ave., Chicago
Masury-Young Co., 76 Roland St., Boston
National Oil Prods. Co., Harrison, N. J.
North Coast Soap & Chem. Wks., Seattle, Wash.
National Sanitary Prods. Co., 217 N. 2nd St., St. Louis
Palmer Prods., Inc., Waukesha, Wis.
Perrow Chemical Co., Hunt, Va.
Pioneer Mfg. Co., 3053 E. 87th St., Cleveland
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Sanitary Floor Compound Co., 104 Railroad Ave.,
Paterson, N. J.
Scranton Chem. Co., Scranton, Pa.
Selig Co., 336 Marietta St., Atlanta, Ga.
Shell Oil Co., 50 W. 50th St., N. Y.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
S. S. Stafford, Inc., 603 Washington St., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago
Standard Oil Co. (Ohio), Midland Bldg., Cleveland
John T. Stanley Co., 642 W. 30th St., N. Y.
H. F. Staples Co., Medford, Mass.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Trojan Products & Mfg. Co., 3130 S. Wabash Ave.,
Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Twin City Shellac Co., 340 Flushing Ave., Bklyn.
Twi-Laq Chemical Co., 25 No. Portland Ave., Brooklyn
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp.,
435 S. Western Ave., Chicago
V. C. Products Co., Philadelphia
Victory Chem. Co., 148 Fairmount Ave., Phila.
T. F. Washburn Co., 2244 Elston Ave., Chicago
Wilco Co., 6800 McKinley Ave., Los Angeles
Windsor Wax Co., 611 Newark St., Hoboken, N. J.

POTASH CAUSTIC
(see also Dealers)

American Cyanamid & Chem. Corp.,
30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington
Innis, Speiden & Co., 117 Liberty St., N. Y.
Niagara Alkali Co., 60 E. 42nd St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Warner Chemical Co., 405 Lexington Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

POTASH SOAPS

American Soap & Washoline Co., Cohoes, N. Y.
Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Antiseptol Co., 5524 Northwest Highway, Chicago
Armour Soap Wks., 1355 W. 31st St., Chicago
Banner Chemical Prod. Corp., 329 Mulberry St., Newark,
N. J.
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Chemical Mfg. & Distrib. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Cole Chemical Co., 22-14—37th Ave., L. I. City, N. Y.
James Counts Soap Co., 2nd & Washington Aves.,
St. Louis, Mo.
Creco Co., Creco Bldg., L. I. City, N. Y.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Davies Young Soap Co., Dayton, Ohio
Eagle Soap Corp., Huntington, Ind.
J. Eavenson & Sons., Del. & Penn Sts., Camden, N. J.
A. C. Fergusson Co., Drexel Bldg., Phila.
Fuld Bros., 702 S. Wolfe St., Baltimore
Genseke Bros., W. 48th Pl. & Whipple St., Chicago, Ill.
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Haag Laboratories, Inc., 6101 S. May St., Chicago
Harley Soap Co., Pierce & Orthodox Sts., Philadelphia
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Holbrook Mfg. Co., Cole & 18th St., Jersey City
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, Ohio
Hysan Products Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St.,
San Francisco, Cal.
Kranich Soap Co., 54 Richards St., Brooklyn
Laurel Soap Mfg. Co., Tioga & Almond Sts., Philadelphia
Long Island Soap Co., Meeker Ave. &
Bridgewater St., Brooklyn
Los Angeles Soap Co., Los Angeles, Calif.
Masury-Young Co., 76 Roland St., Boston
Moore Bros. Co., 67 Vestry St., New York
National Oil Products Co., Harrison, N. J.
National Soap Co., 357 South 25th St., Tacoma, Wash.
North Coast Chem. & Soap Wks., Seattle, Wash.
Palmer Prods., Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati, O.
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Theo. B. Robertson Prods. Co.,
700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Royal Soap & Chem. Co., 511 S. Central Ave.,
Los Angeles
Rubon Woodfinishing & Prods. Co., 500 W. 7th St.,
Kansas City, Mo.
Sanitary Floor Compound Co., 104 Railroad Ave.,
Paterson, N. J.
Schaeffer Bros. & Powell Mfg. Co., 102 Barton St.,
St. Louis, Mo.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
Standard Oil Co. (Ohio), Midland Bldg., Cleveland
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Thompson-Hayward Chemical Co., Kansas City, Mo.
Tremco Mfg. Co., 393 East 131st St., Cleveland
Trojan Products & Mfg. Co., 3130 S. Wabash Ave.,
Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
U. S. Sanitary Specialties Corp., 435 S. Western Ave.,
Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Chas. W. Young & Co., 1247 N. 26th St., Philadelphia

POTASSIUM CARBONATE

American Cyanamid & Chemicals Corp.,
30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
Industrial Chem. Sales Div., West Va. Pulp & Paper Co.,
230 Park Ave., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Harshaw Chem. Co., Cleveland
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

POTASSIUM PERSULFATE

American Cyanamid & Chemicals Corp.,
30 Rockefeller Plaza, N. Y.
Buffalo Elec. Chem. Co., River Rd., Buffalo
E. I. du Pont de Nemours & Co., Wilmington, Del.
Jungmann & Co., 74 Trinity Pl., N. Y.
E. M. Sergeant Pulp & Chemical Co., 350 5th Ave., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

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FOR PYRETHRUM PRODUCTS

PYRIN—The insecticide concentrate combining the best features of pyrethrum and DuPont's normal isobutyl undecylenamide for the manufacture of a household type spray at less cost.

BASIC PYRETHRUM EXTRACTS—For manufacturers who have not already switched to PYRIN, Powco Brand Basic Pyrethrum Extract is recommended because it is made by selective, cold extraction.

STIMTOX—Pest Control Operators and compounders of roach powders facing a shortage of sodium fluoride should investigate Stimtox "A", the *low-cost, fortified* pyrethrum powder. To extend present stocks we suggest that you replace two-thirds of the sodium fluoride in your formula with Stimtox "A".

PYRETHRUM POWDERS—Finer milling to give you more particles per pound—greater spread with higher kill.

ROTENONE PRODUCTS — Derris, Cube and Timbo powders of the same finer grinding; and Crystals, Resins, Extracts to meet your specifications as you need them.

PYRISCENTS — The first insecticide perfumes specifically compounded and thoroughly tested for chemical compatibility with the active principles of Pyrethrum and Pyrin. PYRISCENTS (available in any odor) are *completely* oil soluble; *will not react chemically to reduce killing power;* and maintain their full odor value long after other perfumes have gone "sour."

HYDROSCENTS—Concentrated perfume bases that are readily miscible with water and have a lasting aromatic efficiency. Specifically developed for use in liquid soaps, theater sprays, and other preparations requiring complete water miscibility.

JOHN POWELL & CO., INC.
118 East 32nd Street, New York City.
KILLING POWER—that's the thing!

POTASSIUM SILICATE

E. I. du Pont de Nemours & Co., Wilmington, Del.
Philadelphia Quartz Co., 125 S. 3rd St., Philadelphia

POWDER GUNS (see BELLOWS)

POWDERED SOAP (see SOAP, POWDERED) Do not confuse with SOAP POWDERS

PREMIUMS

Anchor Hocking Glass Corp., Lancaster, O. (glassware)
Goody Mfg. Co., 15 E. 22nd St., N. Y. (novelties)
Hazel-Atlas Glass Co., Wheeling, W. Va. (glassware)
Holgate Co., Kane, Pa. (woodenware toys)
Keystone Processed Prods. Co., 115 E. 23rd St., N. Y. (silks, etc.)
Premium Service Co., 111 W. 19th St., N. Y. (all)

PRESSES (Automatic Soap)

Brill Equipment Corp., 183 Varick St., (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
R. A. Jones & Co., Cincinnati, O.

PRESSES (Foot and Hand Lever for Soap and Para Cakes)

Brill Equipment Corp., 183 Varick St., (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago
F. J. Stokes Mach. Co., Philadelphia, Pa.

PRIVATE FORMULAS (see under individual products)

PULVERIZERS (see GRINDING MACHINERY)

PUMICE STONE

Barnsdall Tripoli Corp., Seneca, Mo.
Chas. B. Chrystal Co., 16 Hudson St., N. Y.
Pumice Corp. of America, Grants, N. M.
Wm. P. Rogers, 44 Woodman St., Lynn, Mass.
Whittaker, Clark & Daniels, 260 W. Bway, N. Y.

PUMPS

Aldrich Pump Co., 1 Pine St., Allentown, Pa.
Alsop Engineering Corp., 100 High St., Milldale, Conn.
American Steam Pump Co., Battle Creek, Mich.
Beach-Russ Co., 50 Church St., N. Y.
Blackmer Pump Co., Grand Rapids, Mich.
S. F. Bowser & Co., Ft. Wayne, Ind.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Buffalo Forge Co., 490 Broadway, Buffalo, N. Y.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
M. T. Davidson Co., 154 Nassau St., N. Y.
Eastern Engineering Co., 45 Fox St., New Haven, Conn.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Foster Pumps, Inc., 51 Washington St., Brooklyn, N. Y.
Goulds Pumps, Inc., Seneca Falls, N. Y.
Houchin Machinery Co., Hawthorne, N. J.
Ingersoll-Rand Co., 11 Broadway, N. Y.
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
Lobee Pump & Machine Co., Buffalo, N. Y.
P. H. & F. M. Roots Co., Connersville, Ind.
Scientific Filter Co., 1 Franklin Square, N. Y.
T. Shriver & Co., Harrison, N. J.
F. J. Stokes Machine Co., Philadelphia, Pa.
Taber Pump Co., 278 Elm St., Buffalo, N. Y.
Viking Pump Co., Cedar Falls, Iowa
Worthington Pump & Machinery Co., 2 Park Ave., N. Y.

PYRETHRUM

Allaire Woodward & Co., Peoria, Ill.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal.
Derris, Inc., 79 Wall St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
Hammond Paint & Chemical Co., Beacon, N. Y.
J. L. Hopkins & Co., 220 Broadway, N. Y.
McCormick & Co., Baltimore, Md.
McLaughlin, Gormley King Co., 1715 Fifth St., S. E., Minneapolis, Minn.
S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
R. J. Prentiss & Co., 80 John St, N Y
H. H. Rosenthal Co., 25 E. 26th St., N. Y.

PYRETHRUM EXTRACT

Allaire Woodward & Co., Peoria, Ill.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Cal.
Dodge & Olcott Co., 180 Varick St., N. Y.
Hammond Paint & Chemical Co., Beacon, N. Y.
J. L. Hopkins & Co., 220 Broadway, N. Y.
McCormick & Co., Baltimore
McLaughlin Gormley King Co., 1715 Fifth St., S. E., Minneapolis
S B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.

RAPESEED OIL

Balfour, Guthrie & Co., 67 Wall St., N. Y.
Irving R. Boody & Co., 99 Wall St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Philadelphia
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
J. H. Redding, Inc., 17 Battery Pl., N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Smith-Weihman Co., 15 Moore St., N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

RAT EXTERMINATING PRODUCTS

American Fluoride Corp., 151 W. 19th St., N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Exterminating Materials Co., 555 W. 22nd St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
Goulard & Olena, Inc., 140 Liberty St., N. Y.
Foote Mineral Co., 1609 Summer St., Philadelphia
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Hysan Products Co., 58 E. Cullerton St., Chicago
Innis, Speiden & Co., 117 Liberty St., N. Y.
Lethelin Products Co., Mt. Vernon, N. Y.
Lewis Soap & Chem. Co., 2210 San Pablo Ave., Oakland, Calif.
Maywood Pest Exterminators, Maywood, Ill.
John Opitz, Inc., 50-14 39th St., Long Island City, N. Y.
Pfaltz & Bauer, Inc., 350 Fifth Ave., N. Y.
Ratin Laboratories, Inc., 112 Broad St., N. Y.

Albert E. Starkie

528 N. Cuyler Avenue
Oak Park, Illinois

Austin 3004-6 P. O. Box 205

DISTILLED FATTY ACIDS

Specifications

	Titre	F.F.A. min.	Iodine	Color	Unsap.
Distilled Corn Oil F.A.	24-26	98	95-110	3½ NPA max.	.....
Redistilled Corn Oil F.A.	26-28	100	100-110	2 NPA max.	.....
Distilled Cotton Oil F.A.	32-34	98	90-100	3½ NPA max.	.....
Redistilled Cotton Oil F.A.	34-36	100	90-100	2 NPA max.	.....
Distilled Coconut F.A.	18-22	128	9-15	2 NPA max.	.....
Distilled Veg. F.A. (VRO)	20-24	110	45-55	3 NPA max.	.....
Distilled Animal F.A.	38-42	102	50-60	2 NPA max.	.....
Distilled Roleic F.A.	32-36	100	44-50	3½ NPA max.	.....

The Purest Form of

STEARIC ACID

Specifications

	Titre	Iodine	F.F.A.	Color. Reading Yellow	Red
Single Pressed Stearic Acid Bead form Stearic Acid Cake form	52.2 to 53.0	10 to 15	103 to 104	10 max.	1.5 max.
Hi Test Single Pressed S. A. Cake or Beads	53.0 53.4	9 max.	103 104	6 max.	1.0 max.
Standard Double Pressed Cake or Beads	53.4 53.9	7 to 9	103 104	4 max.	0.8 to 1.0
Super Double Pressed Cake or Beads	53.9 54.3	5 to 7	103 104	3 max.	0.8 max.
Special Double Pressed Cake for Candle Mfg.	53.9 54.3	5 7	103 105	3 max. Ash 0.004 max.	0.8 max.
Triple Pressed (Regular) Cake or Beads	54.5 53.8	4 max.	104 105	2 max.	0.5 max.
Triple Pressed (Super) *Cake or Beads (Crystal brand)	54.9 55.3	2 max.	104 105	1 max.	0.2 max.

*Large crystals.
Special quality stearic acid produced for buffing trade.

RED OIL

(Saponified and Distilled)

Specifications

	Titre	Iodine	F.F.A.	Color	Unsap.
Distilled R. O. (Reg. Grade)	10-12	92 max.	95-96	3½-4 NPA	3½-4
Distilled R. (Extra Quality)	8-10/10/12	90	97-98	2½-3½ NPA	3%
White Oleine (Redist. R/O)	10-12	90	99-100	1½ max. NPA	2%
Sap. Red Oil (Reg. Grade)	10-12	88-90	92-95	5-7 max. NPA	3% max.
Sap. Red Oil (Hi Titre)	34-38	.....	100-102	7 or darker	.....

(Also Dist. as above except color lighter)
Other grades of both Dist. & Sap. R/O blended to customers specifications or made on order to match samples as submitted.

HYDROGENATED FISH OIL FATTY ACID

VEGETABLE OILS AND FATTY ACIDS

CASTOR (Blown) COCOANUT OILS CORN · COTTONSEED HEMPSEED LINSEED · OLIVE PALM PALM KERNEL · PEANUT BLOWN OILS PERILLA · PINE POPPYSEED RICE BRAN · SESAME SOYA BEAN SUNFLOWER · TEASEED WALNUT ANIMAL OILS

RAT EXTERMINATING PRODUCTS (Contd.)

Sennewald Drug Co., 2723 Chouteau Ave., St. Louis
Shores Co., Cedar Rapids, Iowa
Soilicide Laboratories, Upper Montclair, N. J.
Sur-Rid Prods. Co., 455 Paul Brown Bldg., St. Louis
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp.,
435 S. Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.
York Chemical Co., 424 W. 18th St., N. Y.

RAT POISONS (see SQUILLS, THALLIUM SULFATE, etc.)

RED OIL (Oleic Acid)
(see also Brokers and Dealers)

American British Chem. Supplies, Inc.,
180 Madison Ave., N. Y.
American Cyanamid & Chemicals Corp.,
30 Rockefeller Plaza, N. Y.
Armour & Co., 1355 W. 31st St., Chicago
Celina Stearic Acid Co., Celina, Ohio
Century Stearic Acid Candle Works, 41 E. 42nd St., N. Y.
Darling & Co., 4201 S. Ashland Ave., Chicago
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
A. Gross & Co., 295 Madison Ave., N. Y.
Otto A. C. Hagen, Public Ledger Bldg., Phila.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Harkness & Cowing, Ivorydale, Cincinnati
Procter & Gamble Co., Cincinnati
Theobald Industries, Kearny, N. J.
Arthur C. Trask Co., 4108 S. La Salle St., Chicago
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.
M. Werk Co., St. Bernard, Cincinnati
Wilson-Martin Co., Snyder Ave. & Swanson St.,
Philadelphia

REFINING EQUIPMENT (Glycerine)

E. B. Badger Co., 25 Pitts St., Boston
Buffalo Foundry & Machine Co., Buffalo, N. Y.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. Used)
William Garrigue & Co., 9 S. Clinton St., Chicago
Alan Porter Lee, Inc., 136 Liberty St., N. Y.
Lancaster Iron Works, 564 S. Prince St., Lancaster. Pa.
Ernest Scott & Co., Fall River. Mass.
Walter E. Simmons Co., Boston
Struthers-Wells Co., Warren, Pa.
Swenson Evaporator Co., Harvey, Ill.
Wurster & Sanger, Inc., 5201 S. Kenwood Ave., Chicago

REFRIGERATING EQUIPMENT

York Ice Machine Co., York. Pa.

REMELTERS

Consolidated Products Co., 15 Park Row, N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn
Lancaster Iron Works, 564 S. Prince St., Lancaster, Pa.
Alan Porter Lee, 136 Liberty St., N. Y.
Patterson Foundry & Mach. Co., East Liverpool, O.
Struthers-Wells Co., Warren, Pa.
Wurster & Sanger, Inc., 5201 Kenwood Ave., Chicago

W. C. HARDESTY CO., Inc.

41 East 42nd Street **New York, N. Y.**

RED OIL STEARIC ACID

Saponified - Distilled

HYDROGENATED FATTY ACIDS (HYDREX)

Cottonseed Oil Fatty Acids **Coconut Oil Fatty Acids**
Palm Oil Fatty Acids **Corn Oil Fatty Acids**
Lauric Acid **Specialty Fatty Acids**

Glycerine - Pitch - White Oleine

FACTORIES: Dover, Ohio - Los Angeles, Calif. - Toronto, Canada
CALIFORNIA OFFICE: 5636 East 61st Street, Los Angeles
Cable Address "EPILOGUE"

RESINS, SYNTHETIC

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Bakelite Corp., 240 Park Ave., N. Y.
General Electric Co., Bridgeport, Conn.
Durez Plastics, Inc., North Tonawanda, N. Y.
Paramet Chem. Corp., 44th Ave. & 10th St., L. I. City
Reichhold Chemicals, Inc., Detroit
Resinous Prods. & Chem. Corp., 222 W. Washington Sq., Phila.
Stroock & Wittenberg Corp., Lincoln Bldg., N. Y.

RESPIRATORS

Davis Emergency Equipment Co., 55 Vandam Ave., New York
Mine Safety Appliances Co., Braddock and Thomas Sts., Pittsburgh

RHODINOL (see AROMATIC CHEMICALS)

ROACH PASTE

John Opitz, Inc., 50-14 39th St., L. I. City, N. Y.
Sennewald Drug Co., 2723 Chouteau Ave., St. Louis

ROACH POWDERS (see HOUSEHOLD INSECTICIDES, POWDER)

ROSE OIL (see ESSENTIAL OILS)

ROSEMARY OIL (see ESSENTIAL OILS)

ROSIN

Antwerp Naval Stores Co., Savannah, Ga.
E. W. Colledge, General Sales Agent, P. O. Box 389, Jacksonville, Fla.
Continental Turp. & Rosin Corp., Laurel, Miss.
Crosby Naval Stores, Picayune, Miss.
Dixie Pine Prods. Co., Hattiesburg, Miss. (wood)
Georgia Rosin Prods. Co., Brunswick, Ga.
Glidden Co., Naval Stores Div., P. O. Box 380, Jacksonville, Fla.
Hercules Powder Co., Wilmington, Del. (wood)
Industrial Chem. Sales Div., West Va., Pulp & Paper Co., 230 Park Ave., N. Y.
Newport Industries, Inc., 230 Park Ave., N. Y.
Phoenix Naval Stores Co., Gulfport, Miss. (wood)
Taylor, Lowenstein & Co., Mobile, Ala.

ROSIN SOAP

Chemical Mfg. & Dist. Co., Easton, Pa.
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Haskins Bros. & Co., Omaha
Natl. Oil Prods. Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Chas. W. Young & Co., 1247 N. 26th St., Phila.

ROTENONE PRODUCTS (see also CUBE)

California Spray-Chemical Corp., Lucas & Ortho Way, Richmond, Calif.
Derris, Inc., 79 Wall St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
Hammond Paint & Chem. Co., Beacon, N. Y.
J. L. Hopkins & Co., 220 Broadway, N. Y.
Jooster & Janssen, 132 Front St., N. Y.
Lenape Trading Co., 233 Broadway, N. Y.
McCormick & Co., Baltimore, Md.
Orbis Products Corp., 215 Pearl St., N. Y.
S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
Frank B. Ross Co., 79 Wall St., N. Y.
U. S. Indus. Chemicals, Inc., 60 E. 42nd St., N. Y.

ROTTEN STONE (see ABRASIVES and FILLERS)

RUBBER STOPPERS (see LABORATORY APPARATUS)

RUG and UPHOLSTERY CLEANERS

Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
An-Fo Mfg. Co., 3129 Elmwood Ave., Oakland, Calif.
Candy & Co., 2515 W. 35th St., Chicago
Chemical Mfg. & Distrib. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., New York
Cole Chemical Co., 22-14—37th Ave., L. I. City, N. Y.
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., Kensington, Philadelphia, Pa.
Haag Laboratories, 6101 S. May St., Chicago
Hild Floor Machine Co., 1313 W. Randolph St., Chicago
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
M & H Laboratories, 2705 Archer Ave., Chicago
National Oil Prods. Co., Harrison, N. J.
Palmer Prods., Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago, Ill.
Thompson-Haywood Chem. Co., 2915 S. W. Blvd., Kansas City, Mo.
Trojan Prods. & Mfg. Co., 3130 S. Wabash Ave., Chicago
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 329 E. 29th St., New York
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Washine-National Sands, Inc., 37-02 Northern Blvd., Long Island City
Wilco Co., 6800 McKinley Ave., Los Angeles
Chas. W. Young & Co., 1247 N. 26th St., Phila.

SADDLE SOAP

Armour & Co., 1355 W. 31st St., Chicago
Asco Chemical Co., 641 Lexington Ave., Brooklyn
Baum's Castorine Co., Rome, N. Y.
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
R. M. Hollingshead Corp., Camden, N. J.
National Oil Prods. Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rome Soap Mfg. Co., Rome, N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
J. A. Tumbler Labs., 423 Hanover St., Baltimore

SAL AMMONIAC (see AMMONIUM CHLORIDE)

SAL SODA
(see also Dealers)

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Church & Dwight Co., 70 Pine St., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Mechling Bros. Chemical Co., Camden, N. J.
Michigan Alkali Co., Ford Bldg., Detroit

SAL SODA (Contd.)

Pittsburgh Plate Glass Co., Columbia Chem. Div., 30 Rockefeller Plaza, N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Joseph Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SALT (Common Salt)
(see also Dealers)

Diamond Alkali Co., First Nat'l. Bk. Bldg., Pittsburgh
Dow Chemical Co., Midland, Mich.
Hooker Electrochemical Co., Niagara Falls, N. Y.
International Salt Co., 475 Fifth Ave., N. Y.
Jefferson Salt & Mining Co., Louisville, Ky.
LeRoy Salt Co., LeRoy, N. Y.
Myles Salt Co., 1007 Camp St., New Orleans, La.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Pomeroy Salt Co., Pomeroy, Ohio
Remington Salt Co., Ithaca, N. Y.
Saginaw Salt Prods. Co., Saginaw, Mich.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

SALT WATER SOAP (Hard Water Soap)

Armour Soap Wks., 1355 W. 31st St., Chicago
Buck-Jack Co., 3056 Federal St., Baltimore
J. Eavenson & Sons, Camden, N. J.
Hewitt Soap Co., Dayton, O.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Los Angeles Soap Co., Los Angeles
Newell-Gutradt Co., San Francisco
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati, O.
John T. Stanley Co., 642 W. 30th St., N. Y.
M. Werk Co., Cincinnati

SAMPLE CASES

Arrow Mfg. Co., 15th & Hudson Sts., Hoboken, N. J.
Knickerbocker Case Co., 2311 N. Crawford Ave., Chicago

SAND (see ABRASIVES)

SANDALWOOD OIL (see ESSENTIAL OILS)

SAPONIN (Ext. Soap Bark)

Dodge & Olcott Co., 180 Varick St., N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
Florasynth Labs., 1513 Olmstead Ave., Bronx, N. Y.
Fritzsche Brothers, Inc., 76 Ninth Ave., N. Y.
Hoffman-LaRoche, Inc., Nutley, N. J.
Interstate Color Co., 5 Beekman St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Geo. Lueders & Co., 427 Washington St., N. Y.
Merck & Co., Rahway, N. J.
S. B. Penick & Co., 50 Church St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.

SASSAFRAS, Artificial (see AROMATIC CHEMICALS)

SCIENTIFIC INSTRUMENTS (see INSTRUMENTS)

SCOURING POWDERS

American Soap Powder Wks., Inc., 98 Van Dyke St., Brooklyn
American Soap & Washoline Co., Cohoes, N. Y.
Armour & Co., 1355 W. 31st St., Chicago
Baum's Castorine Co., 200 Mathew St., Rome, N. Y.
Buck-Jack Co., 3056 Federal St., Baltimore
Chemical Mfg. & Distrib. Co., Easton, Pa.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Cudahy Packing Co., 221 N. La Salle St., Chicago
Delta Chemical Co., 4 Payson Ave., N. Y.
Du Bois Soap Co., Cincinnati, O.
Fuld Bros., 702 S. Wolfe St., Baltimore
Hercules Powder Co., Wilmington, Del.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St., San Francisco, Cal.
National Milling & Chem. Co., Manayunk, Philadelphia
Pacific Chem. Co., 1412 N. Main St., Los Angeles
Peck's Prods. Co., 5224 N. 2nd St., St. Louis
Penna. Salt Mfg. Co., 1000 Widener Bldg., Philadelphia
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Solvay Sales Corp., 40 Rector St., N. Y.
S. & S. Soap Co., 324 Barretto St., Bronx, N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Stevens Soap Corp., 200 Sullivan St., Brooklyn
Swift & Co., Chicago
Trojan Products & Mfg. Co., 3130 S. Wabash Ave., Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago
Chas. W. Young & Co., 1247 N. 26th St., Phila.

SCOURING SOAPS (Bars)

American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Works, 1355 W. 31st St., Chicago
Baum's Castorine Co., Rome, N. Y.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Cudahy Packing Co., 221 N. La Salle St., Chicago
James Good, Inc., 2116 E. Susquehanna Ave., Philadelphia
Hercules Powder Co., Wilmington, Del.
Hewitt Soap Co., Dayton, O.
Los Angeles Soap Co., Los Angeles
National Soap Co., P. O. Box 1631, Tacoma, Wash.
Peck's Products Co., St. Louis
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble, Cincinnati, O.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago
Chas. W. Young & Co., 1247 N. 26th St., Phila.

SCREENS (Screening Equipment)

C. O. Bartlett & Snow Co., 6200 Harvard Ave., Cleveland, O.
B. F. Gump Co., 412 S. Clinton St., Chicago
J. H. Day Co., Cincinnati
J. M. Lehmann Co., 248 W. Broadway, N. Y.
Ludlow-Sawyer Wire Co., St. Louis, Mo.
Orville Simpson Co., 1230 Knowlton St., Cincinnati
Sprout, Waldron & Co., Muncy, Pa.
Stedman's Fdy. & Machine Works, Aurora, Ind.
Stephens-Adamson Mfg. Co., Aurora, Ill.
Sturtevant Mill Co., Boston, Mass.
W. S. Taylor Co., Cleveland, O.
Wickwire Spencer Steel Co., 500—5th Ave., N. Y.

SCRUBBING MACHINES (see FLOOR MACHINES)

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Stokes & Smith Co., 4915 Summerdale Ave., Philadelphia
Weigh Right Automatic Scale Co., Joliet, Ill.

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Burt Machine Co., 401 E. Oliver St., Baltimore
Consolidated Products Co., 15 Park Row, N. Y. (Used)
J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Johnson Automatic Sealer Co., Battle Creek, Mich.
R. A. Jones & Co., Cincinnati, O.
Karl Kiefer Machine Co., 919 Martin St., Cincinnati
New Jersey Machine Corp., Hoboken, N. J.
Pneumatic Scale Corp., North Quincy, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago
Stokes & Smith Co., 4915 Summerdale Ave., Phila.
Triangle Package Machinery Co., 906 Spaulding Ave., Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

SEEDS, POISONED (see POISONED SEEDS)

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Antiseptol Co., 5524 Northwest Highway, Chicago
Armour Soap Wks., 1355 W. 31st St., Chicago
Baum's Crstorine Co., 200 Mathew St., Rome, N. Y.
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Compounding Corp., 262 Huron St., Bklyn, N.Y.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Columbia Soap & Chem. Co., Inc., 324 Leavenworth St., San Francisco
James Counts Soap Co., 2nd and Washington Aves., St. Louis
Davies-Young Soap Co., Dayton, O.
Delta Chemical Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
J. Eavenson & Sons, Camden, N. J.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Haag Laboratories, Inc., 6101 S. May St., Chicago
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Harley Soap Co., Pierce & Orthodox Sts., Phila.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Jansen Soap & Chemical Co., 324 Leavenworth St., San Francisco, Cal.
Kranich Soap Co., 54 Richards St., Brooklyn
Lewis Soap & Chem. Co., Oakland, Calif.
Moore Bros. Co., 67 Vestry St., N. Y.
Napthole, Inc., 15 E. 26th St., N. Y.
National Oil Products Co., Harrison, N. J.
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J.
Theo B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Sanitax Brush & Prods. Co., 230 E. Ohio St., Chicago
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Bklyn., N. Y.
Thompson-Hayward Chem. Co., Kansas City, Mo.
J. A. Tumbler Labs., 423 Hanover St., Baltimore
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago
Chas. W. Young & Co., 1247 N. 26th St., Phila.

SHAMPOOS, POWDER AND CAKE

Ampion Corp., 4-88 47th Ave., L. I. City, N. Y.
Armour & Co., 1355 W. 31st St., Chicago
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Davies-Young Soap Co., Dayton, O.
Emulsol Corp., 59 E. Madison St., Chicago
Kranich Soap Co., 60 Richard St., Bklyn.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
National Oil Products Co., Harrison, N. J.
North Coast Chem. & Soap Wks., Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
John Powell & Co., 114 E. 32nd St., N. Y.
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Jersey City, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Bklyn., N. Y.
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

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Ampion Corp., 4-88—47th Ave., L. I. City, N. Y.
Davies-Young Soap Co., Dayton, O.
Emulsol Corp., 59 E. Madison St., Chicago
Fuld Bros., 702 S. Wolfe St., Baltimore
General Drug Co., 644 Pacific St., Bklyn.
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Lewis Soap & Chem. Co., Oakland, Calif.
Michel Export Co., 95 Broad St., N. Y.
National Oil Products Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J.
Sanitax Brush & Prods. Co., 230 E. Ohio St., Chicago
Sherwood Refining Co., Englewood, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Bklyn., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago

SHAVING CREAM Soap and Brushless)

Ampion Corp., 4-88 47th Ave., L. I. City, N. Y.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Clifton Chemical Co., 247 Front St., N. Y.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

SHAVING CREAM BASE

Clifton Chemical Co., 247 Front St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

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Los Angeles Soap Co., Los Angeles
Procter & Gamble Co., Cincinnati
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
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Gillespie-Rogers-Pyatt Co., 80 John St., N. Y.
Haeuser Shellac Co., 52 Warren St., Brooklyn, N. Y.
George H. Lincks, 155 John St., N. Y.
Mac-Lac Co., Inc., 127 Maiden Lane, N. Y.
Mantrose Corp., 136 41st St., Brooklyn, N. Y.
Twin City Shellac Co., 338 Flushing Ave., Brooklyn
Wm. Zinsser & Co., 516 W. 59th St., N. Y.

SHOE POLISH DAUBERS

Alba Cook Co., Jersey City, N. J.
American Cork Specialty Co., 115 Sutton St., Bklyn, N.Y.
Applicator Brush Co., 87 Frankfort St., N. Y.
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California Industrial Minerals Co., Friant, Calif.
Chas. B. Chrystal Co., 16 Hudson St., N. Y.
Dicalite Co., 120 Wall St., N. Y.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
Goris & Arnstein, 1207 W. 37th, Chicago
K. F. Griffiths & Co., 110 E. 42nd St., N. Y.
Hammill & Gillespie, 225 Broadway, N. Y.
Harshaw Chem. Co., Cleveland
Illinois Silica Co., Cairo, Ill.
Innis, Speiden & Co., 117 Liberty St., N. Y.
International Silica Co., Cairo, Ill.
N. J. Pulverizing Co., 15 Park Row, N. Y.
Pennsylvania Pulverizing Co., Lewistown, Pa.
Jas. H. Rhodes & Co., 153 W. Austin Ave., Chicago
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Silica Prods. Co., 700 Baltimore Ave., Kansas City, Mo.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Tamms Silica Co., 228 N. La Salle St., Chicago
Charls A. Wagner Co., 809 Callowhill St., Phila.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

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SLABBERS (see SOAP MACHINERY)

SOAP BARK and EXTRACT (see SAPONIN)

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Baum's Castorine Co., Rome, N. Y.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Conti Products Corp., 155 Varick St., N. Y.
J. Eavenson & Sons, Delaware Ave. & Penn. St., Camden, N. J.
Haskins Bros. & Co., Omaha
J. L. Hopkins & Co., 220 Broadway, N. Y.
Kranich Soap Co., 60 Richards St., Brooklyn, N. Y.
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
S. B. Penick & Co., 50 Church St., N. Y.
John Powell & Co., 114 E. 32nd St., N. Y.
R. J. Prentiss & Co., 80 John St., N. Y.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

SOAP, WHALE OIL (see WHALE OIL SOAP)

SOAP COLORS (see COLORS)

SOAP DIES

Anthony J. Fries & Son Co., 717 Sycamore St., Cincinnati
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259 46th St., Brooklyn, N. Y.
Jas. H. Matthews & Co., 3942 Forbes St., Pittsburgh
Mooney & Bueter, 564 W. Randolph St., Chicago
I. Schwartz Engraving & Die Works, 38 W. 21st St., N. Y.

SOAP DRYERS (see DRYERS)

SOAP FRAMES (see FRAMES)

SOAP KETTLES (see KETTLES)

SOAP DISPENSERS (Liquid)

Ampion Corp., 4-88 47th Ave., L. I. City, N. Y.
American Dispenser Co., 215 Fourth Ave., N. Y.
Bobrick Mfg. Corp., 15 E. 26th St., N. Y.
Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Garnet Chem. Corp., 911 N. Lumber St., Allentown, Pa.
R. M. Hollingshead Corp., Camden, N. J.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Moore Bros Co., 67 Vestry St., N. Y.
Palmer Products, Inc., Waukesha, Wis.
Rochester Germicide Co., Rochester, N. Y.
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago

SOAP DISPENSERS (Powder)

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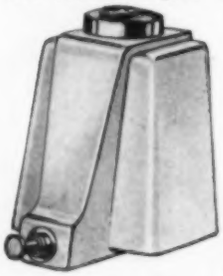


THE D-C STYLE, gravity or spring controlled valve. All metal parts chrome plated. See Neoprene construction described at left.

Note valve construction below for either gravity or spring controlled D.C. push-up dispenser. Patented Neoprene gasket construction that will never leak. Neoprene resists alkalies or oils. Creates a positive close fitting, non-leaking, inexpensive valve. This new patented construction is the only important improvement ever placed on a low priced dispenser and sells at as low a price as any dispenser constructed.

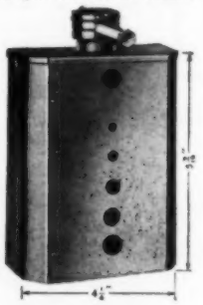
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Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Moore Bros. Co., 67 Vestry St., N. Y.
Packwood Mfg. Co., St. Louis
Palmer Products, Inc., Waukesha, Wis.
Presto Mfg. Co., 770 Cromwell Ave., St. Paul, Minn.
Rochester Germicide Co., Rochester, N. Y.
Sugar Beet Prods. Co., Saginaw, Mich.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Vasco Products Co., Elmira, N. Y.

SOAP DISPENSING SYSTEMS (Multi-unit with Tanks)

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Ampion Corp., 4-88 47th Ave., L. I. City, N. Y.
Bobrick Mfg Corp., 15 E. 26th St., N. Y.
Clifton Chemical Co., 247 Front St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., 702 S. Wolfe St., Baltimore
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Moore Bros. Co., 67 Vestry St., N. Y.
Palmer Products, Inc., Waukesha, Wis.
Rochester Germicide Co., Rochester, N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
West Disinfecting Co., Long Island City, N. Y.

SOAP MACHINERY

Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
J. M. Lehman Co., 248 West Broadway, N. Y.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago
H. K. Porter Co., 49th and Harrison Sts., Pittsburgh

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Moore Bros. Co., 67 Vestry St., N. Y.
Rosefelt Sales Builders, 740 N. Plankinton Ave., Milwaukee, Wisc.
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van Ameringen-Haebler, Inc., 315 4th Ave., N. Y.
Aromatic Products, Inc., 15 E. 30th St., N. Y.
Bayonne Co., 404 Fourth Ave., New York
Bush Pan America Ltd., 136 Liberty St., New York
Ph. Chaleyer, Inc., 160 E. 56th St., N. Y.
Antoine Chiris Co., Inc., 115 E. 23rd St., N. Y.
Compagnie Duval, 121 E. 24th St., N. Y.
Compagnie Parento, Croton-on-Hudson, N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
P. R. Dreyer Inc., 119 W. 19th St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Felton Chemical Co., 603 Johnston Ave., Brooklyn
Firmenich & Co., 135 5th Ave., N. Y.
Florasynth Labs., 1513 Olmstead Ave., Bronx, N. Y.
Benj. French, Inc., 160—5th Ave., N. Y.
Fritzsche Bros., Inc., 76 Ninth Ave., N. Y.
Fuld Bros., 702-710 S. Wolfe St., Baltimore
General Drug Co., 64 Pacific St., Brooklyn, N. Y.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Kay-Fries Chemicals, Inc., 180 Madison Ave., N. Y.
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Complete set up including Amalgamator, Mills, Plodders, Conveyor and Cutting Table.

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Norda Essential Oil & Chem. Co., 601 W. 16th St., N. Y.
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Polak & Schwarz, Inc., 667 Washington St., N. Y.
Polak's Frutal Works, 36-14 35th St., L. I. City, N. Y.
Roure-Dupont, Inc., 366 Madison Ave., N. Y.
Schimmel & Co., 601 W. 26th St., N. Y.
Edwin Seebach Co., 912 Broadway, N. Y.
Sherwood Refining Co., Englewood, N. J.
Standard Synthetics Co., 119 W. 25th St., N. Y.
Tombarel Prods. Corp., 12 E. 22nd St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.
Van Dyk & Co., 57 Wilkinson Ave., Jersey City, N. J.
Albert Verley, Inc., 232 E. Ohio St., Chicago

SOAP POWDER MILLS

Abbe Engineering Co., 50 Church St., N. Y.
Consolidated Products Co., 15 Park Row, N. Y. (Used)
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 359 46th St., Brooklyn, N. Y.
J. M. Lehmann Co., 250 W. Broadway, N. Y.
Prater Pulverizing Co., 1825 S. 55th Ave., Chicago

SOAP POWDERS
(Do not confuse with pure powdered soaps)

American Soap Powder Wks., Inc., 98 Van Dyk St., Brooklyn
American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Beach Soap Co., Lawrence, Mass.
Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Chemical Mfg. & Dist. Co., Easton, Pa.
Cudahy Packing Co., 221 N. La Salle St., Chicago
Du Bois Soap Co., Cincinnati
J. Eavenson & Sons, Camden, N. J.
Haskins Bros. & Co., Omaha
Hercules Powder Co., Wilmington, Del.
Hewitt Soap Co., Dayton, O.
Hochwald Chemical Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
Napthole, Inc., 15 E. 26th St., N. Y.
National Milling & Chem. Co., Manayunk, Phila.
North Coast Soap & Chem. Wks., Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Sanitary Floor Compound Co., 104 Railroad Ave., Paterson, N. J.
S. & S. Soap Co., 324 Barretto St., Bronx, N. Y.
Stevens Soap Corp., 200 Sullivan St., Brooklyn
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Union Stock Yards, Chicago
Vasco Prods. Co., Elmira, N. Y.
Vliet Soap Co., 638 Monroe St., Brooklyn
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Chas. W. Young & Co., Phila.

SOAP PRESSES (see PRESSES)

SOAP SHEETS (See SOAP PAPER)

SOAP SOLUTIONIZING DEVICE Solutionizing and dispensing drums for soft soaps)

Clifton Chemical Co., 247 Front St., N. Y.
Davies-Young Soap Co., Dayton, O.
Rudolph Guth, Inc., 9604 Meech Ave., Cleveland, Ohio

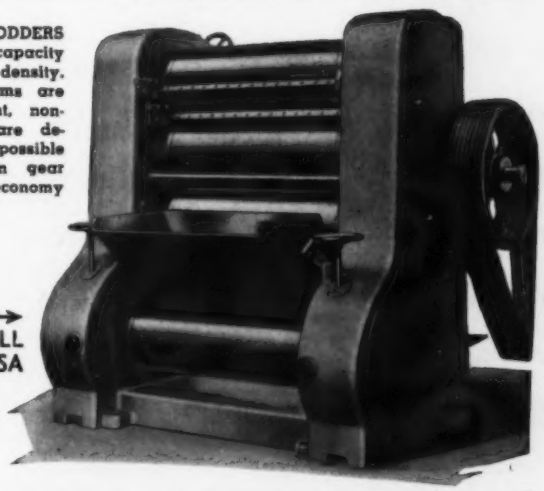
Lehmann Soap Machines Solve Production Problems



● **LEHMANN PLODDERS** provide high capacity at maximum soap density. Aluminum alloy worms are durable, light weight, non-contaminating and are designed for highest possible compression. Built in gear head motor allows economy of plant floor space.

PLODDER TYPE 364

SOAP MILL TYPE 912SA



● **LEHMANN 5 ROLL SOAP MILLS** for toilet soap milling and uniform thin polished flakes have exceptional production capacity.

Let us convince you of the superior efficiency of these units by a private demonstration

Send for detailed specifications

J. M. LEHMANN COMPANY, INC.
250 WEST BROADWAY NEW YORK, N. Y.

LEHMANN

The Standard for Quality in Machinery Since 1834

SOAP SLABBERS (see SOAP MACHINERY)

SOAP STOCK (Boiled down cotton oil soap stock, etc.)
(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago
T. G. Cooper & Co., 47 N. 2nd St., Phila.
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Portsmouth Cotton Oil Refining Co., Portsmouth, Va.
Procter & Gamble Co., Cincinnati, O.
Southern Cotton Oil Co., Produce Exchange, N. Y.
A. E. Staley Mfg. Co., Decatur, Ill.
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.

SOAP VALVES (See Soap Dispensing Systems)

SOAP WRAPPING MACHY. (See WRAPPING MACHY.)

SOAPLESS DETERGENTS (see DETERGENTS, SYNTHETIC)

SOAPLESS SHAMPOOS (see SHAMPOOS, SOAPLESS)

SOAPS, AUTO (see POTASH SOAPS)

SOAPS, FLOATING (see FLOATING SOAPS)

SOAPS, GRANULATED (see LAUNDRY SOAPS)

SOAPS, LIQUID (see POTASH SOAPS)

SOAPS, MEDICINAL, CAKE (see MEDICINAL SOAPS, CAKE)

SOAPS, MOTTLED (see MOTTLED SOAPS)

SOAPS, PINE SCRUB (See PINE SCRUB SOAPS)

SOAPS, SCOURING (see SCOURING SOAPS)

SOAPS, SCRUBBING (see FLOOR SCRUB SOAPS)

SOAPS, SURGICAL (see POTASH SOAPS)

SOAPS, TEXTILE (see TEXTILE SOAPS)

SODA ASH
(see also Dealers)

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Michigan Alkali Co., Ford Bldg., Detroit
Niagara Alkali Co., 60 E. 42nd St., N. Y.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SODA (Modified)
(see also Dealers)

American Cyanamid & Chemicals Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Michigan Alkali Co., Ford Bldg., Detroit
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SODIUM ALGINATE

Kelco Co., 31 Nassau St., N. Y.

SODIUM BICARBONATE
(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Church & Dwight Co., 70 Pine St., N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Mathieson Alkali Works, 60 E. 42nd St., N. Y.
Michigan Alkali Co., Ford Bldg., Detroit
Monsanto Chem. Co., St. Louis
Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SODIUM BICHROMATE
(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Merck & Co., Rahway, N. J.
Mutual Chemical Co., 270 Madison Ave., N. Y.
Natural Products Refining Co., 900 Garfield Ave., Jersey City, N. J.
Prior Chem. Corp., 420 Lexington Ave., N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

SODIUM CARBONATE (see SODA ASH)

SODIUM CHOLATE (Bile Salt)

Digestive Ferments Co., Detroit
E. I. du Pont de Nemours & Co., Wilmington
R. W. Greeff & Co., 10 E. 40th St., N. Y.
Wilson Labs., 4221 S. Western Ave., Chicago

SODIUM CYANIDE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

SODIUM FLUORIDE (see FLUORIDES)

SODIUM HYDROSULFITE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
J. T. Baker Chem. Co., Phillipsburg, N. J.
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
General Dyestuffs Corp., 435 Hudson St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Royce Chemical Co., Carlton Hill, N. J.

SODIUM HYPOCHLORITE (see CHLORINE, see LAUNDRY BLEACH)

SODIUM HYPOSULFITE (Thiosulfate)

E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
A. R. Maas Chem. Co., South Gate, Calif.
Mallinckrodt Chem. Wks., St. Louis
Merck & Co., Rahway, N. J.
Rohm & Haas, 222 W. Washington Sq., Phila.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.

SODIUM LAURYL SULFATE (see SULFONATED FATTY ALCOHOLS

SODIUM METAPHOSPHATE

Blockson Chemical Co., Joliet, Ill.
Calgon, Inc., 300 Ross St., Pittsburgh
Victor Chem. Wks., 141 W. Jackson Blvd., Chicago

SODIUM METASILICATE

Cowles Detergent Co., 7016 Euclid Ave., Cleveland
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Mechling Bros., Chemical Co., Camden, N. J.
Philadelphia Quartz Co., 125 So. 3rd St., Phila.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SODIUM NAPHTHENATE

E. I. du Pont de Nemours & Co., Wilmington, Del.
General Dyestuffs Corp., 435 Hudson St., N. Y.
National Aniline & Chem. Co., 40 Rector St., N. Y.

SODIUM ORTHOSILICATE

Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
Pennsylvania Salt Mfg. Co., 1000 Widener Bldg., Phila.
Philadelphia Quartz Co., 125 So. 3rd St., Phila.

SODIUM PERBORATE
(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours, Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Merck & Co., Rahway, N. J.
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.

SODIUM PYROPHOSPHATE (See TETRA SODIUM PYROPHOSPHATE

SODIUM SESQUICARBONATE

Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Mathieson Alkali Wks., 60 E. 42nd St., N. Y.
Mechling Bros., Chemical Co., Camden, N. J.
Pittsburgh Plate Glass Co., Columbia Chemical Div., 30 Rockefeller Plaza, N. Y.
Solvay Sales Corp., 40 Rector St., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SODIUM SESQUISILICATE

Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
Philadelphia Quartz Co., 125 S. 3rd St., Phila.
Joseph Turner & Co., Ridgefield, N. J.

SODIUM SILICATE
(see also Dealers)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Diamond Alkali Co., Standard Silicate Div., 535 Smithfield St., Pittsburgh
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Mechling Bros. Chem. Co., Camden, N. J.
Philadelphia Quartz Co., 125 So. 3rd St., Phila.

SODIUM SILICOFLUORIDE

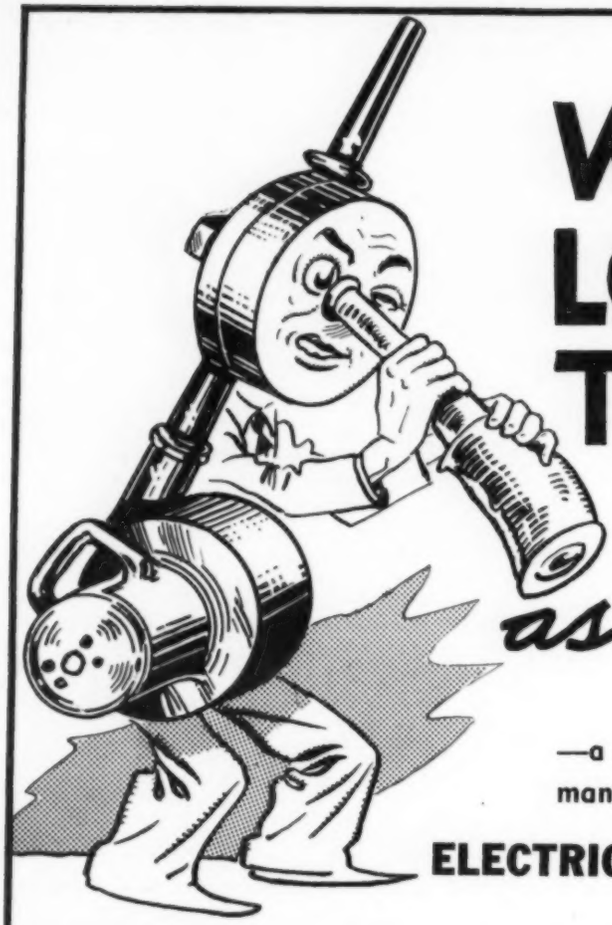
American British Chem. Supplies, Inc., 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
American Fluoride Corp., 151 W. 19th St., N. Y.
Blockson Chemical Co., Joliet, Ill.
E. I. Du Pont de Nemours & Co., Wilmington, Del.
General Chem. Co., 40 Rector St., N. Y.
Charles Hardy, Inc., 415 Lexington Ave., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Merck & Co., Rahway, N. J.
E. M. Sergeant Pulp & Chemical Co., 350-5th Ave., N.Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

SOLUBLE OILS (Sulfonated Oils)

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Apex Chemical Co., 225 W. 34th St., N. Y.
Arabol Mfg. Co., 110 E. 42nd St., N. Y.
Atlantic Refining Co., 260 S. Broad St., Phila.
Napthole, Inc., 15 E. 26th St., N. Y.
Richards Sales Corp., Warren and Morris Sts., Jersey City, N. J.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
Jacques Wolf & Co., Passaic, N. J.

SOLVENT NAPHTHA

Atlantic Refining Co., 260 S. Broad St., Phila.
Barrett Co., 40 Rector St., N. Y.
S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
Commerce Petroleum Co., 2923 Lock St., Chicago
Deep Rock Oil Corp., 155 N. Clark St., Chicago



WE'RE LOOKING, TOO— — —

as hard as you are!

—a statement of facts addressed to the many customers of Adam A. Breuer's

ELECTRIC INSECTICIDE SPRAYER

SHORTAGE of materials used in the manufacture of Breuer's ELECTRIC INSECTICIDE SPRAYERS has not only affected the delivery of new units but has made it necessary for us to look for suitable substitutes.

The use of substitute materials, however, has not changed the design or performance of our Sprayers, which are essentially the same unit except for a change in "dress." Instead of the aluminum container, 20-foot cord and aluminum handle formerly used, we now use a glass container, 10-foot cord and wooden handle.

Shortly, the castings throughout will be brass, iron or steel stampings. Time switches will soon be eliminated. There is only a limited quantity of them left. Models 50, 53 and 54 are procurable for a limited time while the supply of time switches lasts. Some models—36-A and 51—have been discontinued entirely. The Blower-type Sprayers, Models 6-A, 8-A and 10-A are obtainable only with a Priority Certificate of A-10 or higher.

This explains the situation confronting us and shows how we are striving, despite growing odds, to maintain as fully as possible our contact with and service to our regular customers.

We do not sell insecticides. Our business is the manufacture of Sprayers. (Patented in U. S. A. and foreign countries).

BREUER ELECTRIC MFG. CO.

5120 N. Ravenswood Ave., CHICAGO, ILL.

SOLVENT NAPHTHA (Contd.)

Wm. E. Jordan & Bro., 2590 Atlantic Ave., Brooklyn
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Neville Co., Pittsburgh
Pennsylvania Refining Co., Butler, Pa.
Pittsburgh Coal Carbonization Co., Oliver Bldg., Pittsburgh
Reilly Tar & Chemical Corp., Indianapolis
Shell Oil Co., 50 W. 50th St., N. Y.
Shell Petroleum Corp., Shell Bldg., St. Louis
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co., (Ind.) 910 S. Michigan Ave., Chicago

SOLVENTS, ORGANIC

Barrett Co., 40 Rector St., N. Y.
Carbide & Carbon Chem. Corp., 30 E. 42nd St., N. Y.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
Crosby Naval Stores, Inc., Picayune, Miss.
Diamond Alkali Co., 535 Smithfield St., Pittsburgh
Delta Chemical Co., 2101 Washington Blvd., Baltimore (Monochlorbenzene & Tri-chlorbenzene)
Dow Chemical Co., Midland, Mich.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Hercules Powder Co., Wilmington
Hooker Electrochemical Co., Niagara Falls, N. Y.
Kessler Chem. Corp., 239—11th Ave., N. Y.
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Neville Co., Pittsburgh
Pennsylvania Refining Co., Butler, Pa.
Pittsburgh Coal Carbonization Co., Oliver Bldg., Pittsburgh
Reilly Tar & Chemical Corp., Indianapolis
Sharples Solvents Corp., Phila.
Standard Alcohol Co., 26 Broadway, N. Y.
U. S. Industrial Chem. Co., 60 E. 42nd St., N. Y.
Velsicol Corp., 120 E. Pearson St., Chicago
Warner Chemical Co., 405 Lexington Ave., N. Y.

SOLVENTS, PETROLEUM

American Mineral Spirits Co., 230 N. Michigan Ave., Chicago
Anderson-Pritchard Oil Co., Oklahoma City, Okla.
Atlantic Refining Co., 260 S. Broad St., Philadelphia
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Commerce Petroleum Co., 2923 Lock St., Chicago
Deep Rock Oil Corp., 155 N. Clark St., Chicago
E. I. du Pont de Nemours Co., Wilmington, Del.
Pennsylvania Refining Co., Butler, Pa.
Shell Oil Co., 50 W. 50th St., N. Y.
Sinclair Refining Co., 630—5th Ave., N. Y.
Skelly Oil Corp., 605 W. 47th St., Kansas City, Mo.
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co., (Ind.) 910 S. Michigan Ave., Chicago
Standard Oil Co., (Ohio) Midland Bldg., Cleveland
Velsicol Corp., 120 E. Pearson St., Chicago

SOYA BEAN OIL
(see also Brokers and Dealers)

Balfour, Guthrie Co., 67 Wall St., N. Y.
Irving R. Boody & Co., 99 Wall St., N. Y.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
William O. Goodrich Co., Milwaukee, Wis.
W. R. Grace & Co., 7 Hanover Sq., N. Y.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Spencer Kellogg & Son, Buffalo, N. Y.
Murray Oil Products Co., 21 West St., N. Y.
Pacific Vegetable Oil Co., 62 Townsend St., San Francisco
Procter & Gamble Co., Cincinnati
Purina Mills, St. Louis
J. H. Redding Co., 17 Battery Pl., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Staley Mfg. Co., Decatur, Ill.
A. E. Starkie Co., 528 N. Cuyler Ave., Oak Park, Ill.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

SPERMACETI

E. A. Bromund Co., 258 Broadway, N. Y.
A. C. Drury & Co., 219 E. North Water St., Chicago
Innis, Speiden & Co., 117 Liberty St., N. Y.
Lenape Trading Co., 225 Broadway, N. Y.
George H. Lincks, 155 John St., N. Y.
Neumann-Buslee & Wolfe, 224 W. Huron St., Chicago,
Orbis Products Corp., 215 Pearl St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Smith & Nichols, 121 Maiden Lane, N. Y.
Strohmeyer & Arpe Co., 139 Franklin St., N. Y.
Will & Baumer Candle Co., Syracuse, N. Y.

SPONGES

Allied Industrial Prods. Co., 620 N. Michigan, Chicago
American Sponge & Chamois Co., 47 Ann St., N. Y.
American Standard Mfg. Co., 2509 S. Green St., Chicago
Atlas Sponge Co., 291 Church St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington
Florida Sponge & Chamois Co., 42 Cliff St., N. Y.
Great Eastern Sponge & Chamois Co., 833 N. Catt. Pk. Ave., Baltimore
James H. Rhodes & Co., 157 W. Hubbard St., Chicago
Robinson Sponge Co., 1805 Atlantic Ave., Brooklyn

SPOTTING FLUIDS (see CLEANING FLUIDS)

SPRAYERS, BOTTLE

Arnold-Copeland Co., 368 Congress St., Boston
Federal Tool Corp., 412 Leavitt St., Chicago
Wilco Co., 7016 McKinley Ave., Los Angeles

SPRAYERS, COMPRESSED AIR

Acmeline Mfg. Co., Traverse City, Mich.
Binks Mfg. Co., 3114 Carroll Ave., Chicago
Breuer Electric Mfg. Co., 5120 N. Ravenswood Ave., Chicago
E. C. Brown Co., Rochester, N. Y.
DeVilbiss Co., Toledo, O.
Dobbins Mfg. Co., Elkhart, Ind.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Fumeral Co., Racine, Wis.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Lowell Mfg. Co., North Pier Terminal, Chicago
Mystic Products Co., 417 No. 5th St., Minneapolis
D. B. Smith & Co., Utica, N. Y.
Simmons Paint Spray Brush Co., Dayton, O.
Volume Sprayer Mfg. Co., Tulsa, Okla.

SPRAYERS, ELECTRIC

Acmeline Mfg. Co., Traverse City, Mich.
Binks Mfg. Co., 3114 Carroll Ave., Chicago
Breuer Electric Mfg. Co., 5120 N. Ravenswood Ave., Chicago
Dobbins Mfg. Co., Elkhart, Ind.
DuLa Mfg. Co., 351 Atlantic Ave., Brooklyn, N. Y.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Fumeral Co., Racine, Wisc.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Lowell Mfg. Co., North Pier Terminal. Chicago
Metal Specialties Mfg. Co., 3208 Carroll Ave., Chicago
D. B. Smith Co., Utica, N. Y.

SPRAYERS, ELECTRIC, STEAM

Du-La Mfg. Co., 351 Atlantic Ave., Brooklyn
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.

Dobbins Superbilt

SPRAYERS—DUSTERS



No. 170 SOAP SPRAYER
A High Pressure Portable Sprayer for the economical application of scrubbing soap or floor cleaning compounds to large floor surfaces.

Write for Catalog and Price List

WE CAN SOLVE YOUR SPRAY PROBLEMS



No. 35-C 3 QUART CAPACITY

HIGH PRESSURE CHEMICAL SPRAYER WITH CONTROLLED ATOMIZATION
The discharge has a wide range of adjustments, from a forceful, penetrating spray, to fine floating fog, with in-between variations.



No. 43G-3 QUART CAPACITY
Pressure Sprayer with lever control. Can be operated as continuous sprayer by holding lever down while pumping. Very convenient and efficient.



No. S-122-G SOAP SPRAYER
A convenient soap sprayer for janitor service. Hose, valves and all gaskets are made from materials that will withstand the caustic action of soap and cleaners.



This Patented Spray Cap develops a wide fan shaped, flat spray that thoroughly covers a surface three feet in width. Enables the operator to prevent spray on walls, baseboards and furniture.
Furnished with the No. S-122-G Sprayer.



A complete line of Hand Sprayers and Atomizers.



No. 133 NEW TYPE DUSTER
Uniform discharge. The most efficient hand duster manufactured.



No. 10 Floor Oil Sprayer with Air Regulator and Volume Control. 1½ gal. Capacity.

There is a Dobbins SUPERBILT Sprayer or Duster that will make your Good Products more effective.

DOBBINS MANUFACTURING CO.

GENERAL SALES OFFICE
ELKHART, INDIANA

FACTORIES AT
NORTH ST. PAUL, MINN.
ELKHART, INDIANA

SPRAYERS, ELECTRIC, STEAM (Contd.)

Fumeral Co., Racine, Wis.
Kaz Mfg. Co., 611 W. 43rd St., N. Y.
Lowell Mfg. Co., North Pier Terminal, Chicago
Mystic Products Co., 417 N. Fifth St., Minneapolis

SPRAYERS, HAND

Acmeline Mfg. Co., Traverse City, Mich.
E. C. Brown Co., Rochester, N. Y.
Continental Can Co., 100 E. 42nd St., N. Y.
Dobbins Mfg. Co., Elkhart, Ind.
Electric Sprayit Co., 1415 Illinois Ave., Sheboygan, Wis.
Hudson Mfg. Co., 589 E. Illinois St., Chicago
Jaeckh Mfg. Co., Cincinnati
Lowell Mfg. Co., North Pier Terminal, Chicago
D. B. Smith Co., Utica, N. Y.
Standard Container, Inc., Bloomfield, N. J.
Universal Metal Prods. Co., Lowell, Mich.
Volume Sprayer Mfg. Co., Tulsa, Okla.

SPRAYERS, MOUTH

Acmeline Mfg. Co., Traverse City, Mich.
Arnold-Copeland Co., 368 Congress St., Boston
H. D. Hudson Mfg. Co., 589 E. Illinois St., Chicago
Lowell Mfg. Co., North Pier Terminal, Chicago
D. B. Smith & Co., Utica, N. Y.
Standard Container, Inc., Bloomfield, N. J.

SPREADERS for INSECTICIDE (see CLAYS)

SQUEEGEES

Ardmore Mfg. Co., 5082 N. Lincoln Ave., Chicago
W. J. Dennis & Co., 1732 N. Kolmar, Chicago
A. F. Dormeyer Mfg. Co., 4316 N. Kilpatk. St., Chicago
Haisler Bros. Co., 215 W. Superior St., Chicago
Aug. Hanke & Son Co., 6326 W. Cuyler Ave., Chicago
J. Racenstein & Co., 621 Broadway, N. Y.
Reliance Hardward & Mfg. Co., 1438 N. Keating St., Chicago

SQUILLS (Rodent Poison)

Associated Chemists, Inc., 1906 N. Halsted Ave., Chicago
J. L. Hopkins & Co., 220 Broadway, N. Y.
McLaughlin Gormley King Co., 1715—5th St., S. E., Minneapolis, Minn.
S. B. Penick & Co., 50 Church St., N. Y.
R. J. Prentiss & Co., 30 John St., N. Y.
Ratin Latboratory, 116 Broad St., N. Y.

STANNOUS CHLORIDE (see TIN CRYSTALS)

STARCH
(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Arabol Mfg. Co., 110 E. 42nd St., N. Y.
T. G. Cooper & Co., 47 N. 2nd St., Phila.
A. C. Drury & Co., 219 E. N. Water St., Chicago
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Keever Starch Co., Columbus, O.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
National Starch Prods., 820 Greenwich St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
A. E. Staley Mfg. Co., Decatur, Ill.
Charles A. Wagner Co., 813 Callowhill St., Phila.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

STEARATES (Zinc, Calcium, Magnesium, etc.)
(see also Dealers)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
E. I. du Pont de Nemours Co., Wilmington, Del.
Franks Chem. Prods. Co., 55—33rd St., Brooklyn
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Hooker Electrochemical Co., Niagara Falls, N. Y.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Jungmann & Co., 74 Trinity Pl., N. Y.
Mallinckrodt Chem. Wks., St. Louis
Merck & Co., Rahway, N. J.
Metasap Chemical Co., Harrison, N. J.
M. W. Parsons, Inc., 59 Beekman St., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Jos. Turner & Co., Ridgefield, N. J.

STEARIC ACID
(see also Brokers and Dealers)

American British Chem. Supplies, Inc., 180 Madison Ave., N. Y.
American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Armour & Co., 1355 W. 31st St., Chicago
Celina Stearic Acid Co., Celina, Ohio
Century Stearic Acid Candle Wks., 41 E. 42nd St., N. Y.
Darling & Co., 4201 S. Ashland Ave., Chicago
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
A. Gross & Co., 295 Madison Ave., N. Y.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Harkness & Cowing, Ivorydale, Cincinnati
Innis, Speiden & Co., 117 Liberty St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Orbis Products Corp., 215 Pearl St., N. Y.
Procter & Gamble Co., Cincinnati
E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Theobald Industries, Kearny, N. J.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
M. Werk Co., St. Bernard, Cincinnati
Will & Baumer Candle Co., Syracuse, N. Y.
Wilson-Martin Co., Snyder Ave. & Swanson St., Phila.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

STEARINE
(see also Brokers and Dealers)

Celina Stearic Acid Co., Celina, Ohio
Darling & Co., 4201 S. Ashland Ave., Chicago
Durkee Famous Foods, Inc., 2670 Elston Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, Inc., 4300 Carew Tower, Cincinnati
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Independent Mfg. Co., Bridesburg P. O., Phila.
Morris Co., Union Stock Yards, Chicago
Pacific Vegetable Oil Corp., 62 Townsend St., San Francisco
Procter & Gamble Co., Cincinnati
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Louis Stern Sons, Inc., Produce Exch., N. Y.
Swift & Co., Union Stock Yards, Chicago
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.
Wilson & Co., 4100 Ashland Ave., Chicago

STEARINE PITCH

Armour & Co., 1355 W. 31st St., Chicago
Darling & Co., 4201 S. Ashland Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, 4300 Carew Tower, Cincinnati
A. Gross & Co., 295 Madison Ave., N. Y.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Procter & Gamble Co., Ivorydale, O.

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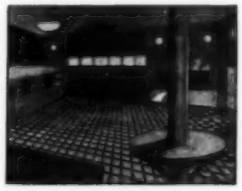
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- Highly economical.
- Made in 5 grades for all types of non-waxed wood and cement floors.

In selling sweeping compound today, it is vitally important that you consider the floor on which it is to be used . . . and recommend the *proper* compound.

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"NO-SPOT" SWEEPING COMPOUND contains no oil, water or sand and will not spot, stain or scratch the floor surface. Here is an entirely new-type sweeping compound you may sell with confidence for SAFE USE on asphalt tile, rubber tile, cork tile, mastic, linoleum and waxed wood floors —with the assurance of customer satisfaction.

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In "NO-SPOT" SWEEPING COMPOUND and "FLORSWEEP" in 5 grades, we offer a super-line of sweeping compounds that permits you to sell the proper product for every type of floor . . . "NO-SPOT" for resilient floors . . . "FLORSWEEP" for non-waxed wood and cement floors of every type. The result means increased Sweeping Compound sales, with increased profits. Mail Coupon Now! Get the full, complete facts and sweeping compound qualifications, with which you should be thoroughly familiar.

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STEARINE PITCH (Contd.)

E. M. Sergeant Pulp & Chemical Co., Empire State Bldg., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Wilson & Co., Snyder Ave., Phila.

STEEL DRUMS (see DRUMS, STEEL)

STEEL PAILS (see PAILS, STEEL)

STEEL, NICKEL CLAD

Illinois Steel Co., 208 S. La Salle St., Chicago
International Nickel Co., 67 Wall St., N. Y.
Lukens Steel Co., Coatesville, Pa.
Republic Steel Corp., Republic Bldg., Cleveland, O.

STEEL TANKS (see TANKS, STEEL)

STEEL WOOL

American Steel Wool Mfg. Co., 42-24 Orchard St., L. I. City, N. Y.
International Steel Wool Co., Springfield, Ohio
James H. Rhodes & Co., 157 W. Hubbard St., Chicago

STODDARD'S SOLVENT (see SOLVENTS, PETROLEUM)

STORAGE TANKS (see TANKS, STORAGE, etc.)

SUDSING EQUIPMENT (see SOAP SOLUTIONIZING DEVICE)

SULFATED FATTY ALCOHOLS (and other Non-Soap Organic Detergents, and Derivatives)

Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Dyestuffs Corp., 435 Hudson St., N. Y.
Hummel Chemical Co., 90 West St., N. Y.
N. I. Malmstrom & Co., 147 Lombardy St., Brooklyn
Michel Export Co., 90 Broad St., N. Y.
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Jersey City, N. J.
Sandoz Chemical Works, 61 Van Dam St., N. Y.
Jacques Wolfe & Co., Passaic, N. J.

SULFONATED OILS

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Phila.
E. F. Drew & Co., Wecoline Div., Boonton, N. J.
Eastern Industries, Inc., Ridgefield, N. J.
Emery Industries, 4300 Carew Tower, Cincinnati
Hercules Powder Co., Wilmington
Kali Mfg. Co., 1408 N. Front St., Philadelphia
National Oil Prods. Co., Harrison, N. J.
Richards Sales Corp., Jersey City, N. J.
Sandoz Chemical Works, 61 Van Dam St., N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Arthur C. Trask Co., 4103 S. La Salle St., Chicago
Welch Holme & Clark, Inc., 563 Greenwich St., N. Y.
Jacques Wolfe & Co., Passaic, N. J.

SULFOXYLATES (Soap Bleaches)

Rohm & Haas Co., Inc., 222 W. Washington Sq., Phila.
Jacques Wolfe & Co., Passaic, N. J.

SULFUR CANDLES

Reliable Chemical Co., Passaic, N. J.
White Tar Co., Kearny, N. J.

SUPERFATTING AGENTS

N. I. Malmstrom Co., 147 Lombardy St., Bklyn.
National Oil Prods. Co., Harrison, N. J.
Pfaltz & Bauer, 350—5th Ave., N. Y.
Pylam Products Co., 799 Greenwich St., N. Y.
Richards Sales Corp., Jersey City, N. J.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.

SUPERHEATERS

Eureka Machine Co., 2601 Vega Ave., Cleveland
Ernest Scott & Co., Fall River, Mass.
The Superheater Co., 60 E. 42nd St., N. Y.

SURGICAL SOAPS (see POTASH SOAPS)

SWEEPING COMPOUNDS

American Excelsior Corp., 1000 N. Halstead St., Chicago
American Soap & Washoline Co., Cohoes, N. Y.
Banner Chemical Prod. Corp., 329 Mulberry St., Newark, N. J.
Baums Castorine Co., 200 Matthews St., Rome, N. Y.
Champion Mfg. Co., 322 S. Erie St., Indianapolis, Ind.
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Cole Chemical Co., 22-14 37th Ave., L. I. City, N. Y.
Creco Co., Inc., Creco Bldg., Long Island City, N. Y.
Fitch Dustdown Co., 801 S. Howard St., Baltimore
Fuld Bros., 702 S. Wolfe St., Baltimore
Higley Chemical Co., Dubuque, Iowa
Hockwald Chem. Co., 135 Mississippi St., San Francisco
R. M. Hollingshead Corp., Camden, N. J.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Hysan Products Co., 58 E. Cullerton St., hicago
Frank Miller & Sons, 2240 W. 58th St., Chicago
North Coast Soap & Chem. Wks., Seattle, Wash.
Pacific Chem. Co., 1421 N. Main St., **Los Angeles**
Palmer Products, Inc., Waukesha, Wis.
Peck's Prods. Co., 5238 N. Second St., St. Louis
Pioneer Mfg. Co., Cleveland, O.
Port Huron Detergent Co., Port Huron, Mich.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Germicide Co., Rochester, N. Y.
Sanco Prods. Inc., Greenville, O.
Sanitary Floor Compound Co., 104 Railroad Ave., Paterson, N. J.
Jno. C. F. Snyder & Sons, Inc., 2304 N. 28th St., Phila.
Solshine Mfg. Co., 44 Brookline St., Cambridge, Mass.
Sweeping Compound Mnfrs. C., 421 Broome St., N. Y.
Uncle Sam Chemical Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago

SYNTHETIC DETERGENTS (see DETERGENTS, SYNTHETIC)

SYNTHETIC INSECTICIDE CONCENTRATES (see INSECTICIDE CONCENTRATES, SYNTHETIC)

SYNTHETIC WAXES (see WAXES, SYNTHETIC)

TALL OIL (TALLOL)

Champion Paper & Fibre Co., Canton, North Carolina
Industrial Chem. Sales Div., West Va. Pulp & Paper Co., 230 Park Ave., N. Y.
National Oil Prods. Co., Harrison, N. J.
E. M. Sergeant Pulp & Chemical Co., 350-5th Ave., N. Y.
Welch, Holme & Clark Co., 563 Greenwich St., N. Y.

TALC

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Binney & Smith Co., 41 E. 42nd St., N. Y.
Blue Ridge Talc Co., Henry, Va.
Chas. B. Chrystal Co., 16 Hudson, N. Y.
A. C. Drury & Co., 219 East North Water St., Chicago
E. I. du Pont de Nemours Co., Wilmington, Del.
Eastern Magnesia Talc Co., Burlington, Vt.
Fezandie & Sperrle, 205 Fulton St., N. Y.
Georgia Talc Co., Asheville, N. C.
Goris & Arnstein, 37th & Racine Ave., Chicago
K. F. Griffiths & Co., 110 E. 42nd St., N. Y.
Hammill & Gillespie, 225 Broadway, N. Y.
Hercules Powder Co., Wilmington, Del.
Innis, Speiden & Co., 117 Liberty St., N. Y.
Los Angeles Talc Co., Los Angeles, Cal.
Natura Minerals Co., 108 W. 6th St., Los Angeles
Orbis Products Corp., 215 Pearl St., N. Y.
Pacific Coast Talc Co., Los Angeles, Cal.
R. F. Revson Co., 144 W. 18th St., N. Y.
James H. Rhodes & Co., 157 W. Hubbard St., Chicago
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
E. M. Sergeant Pulp & Chemical Co., 350-5th Ave., N. Y.
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Tamms Silica Co., 228 N. LaSalle St., Chicago
Union Talc Co., 147 Nassau St., N. Y.
Charles A. Wagner Co., 809 Callowhill St., Phila.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Whittaker, Clark & Daniels, 260 W. Broadway, N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.
Wyodak Chemical Co., 4600 E. 71st St., Cleveland

TALLOW
(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago
Belleville Rendering Co., Belleville, Ill.
Consolidated Rendering Co., 178 Atlantic Ave., Boston
Cudahy Packing Co., 111 W. Monroe St., Chicago
Darling & Co., 4201 S. Ashland Ave., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
Otto A. C. Hagen Corp., Public Ledger Bldg., Phila.
Independent Mfg. Co., Bridesburg P. O., Phila.
Long Island Soap Co., 29 Bridgewater St., Brooklyn
Louisville Butchers' Hide & Tallow Co., Louisville, Ky.
National Oil Prods. Co., Harrison, N. J.
Willibald Schaefer Co., Foot of Bremen Ave., St. Louis
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Swift & Co., Union Stock Yards, Chicago
Theobald Industries, Kearny, N. J.
Toledo Tallow Co., Toledo, Ohio
Waltham Tallow Co., Waltham, Mass.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Wilson & Co., Union Stock Yards, Chicago
Wilson-Martin Co., Swanson St., Phila.

TALLOW CHIP SOAP (see CHIP SOAPS)

TALLOW OIL
(see also Brokers and Dealers)

Armour & Co., 1355 W. 31st St., Chicago
Consolidated Rendering Co., 40 N. Market St., Boston
Cudahy Packing Co., 111 W. Monroe St., Chicago
Eastern Industries, Inc., Ridgefield, N. J.
W. C. Hardesty Co., 41 E. 42nd St., N. Y.
Independent Mfg. Co., Bridesburg P. O., Phila.
Toledo Tallow Co., Toledo, O.
Waltham Tallow Co., Waltham, Mass.
Welch, Holme & Clark Co., Inc., 563 Greenwich St., N. Y.
Wilson & Co., Union Stock Yards, Chicago

TANKS (Glass Lined Mixing and Storage)

Alsop Engineering Corp., 100 High St., Milldale, Conn.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Products Co., 15 Park Row, N. Y. (Used)
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Ertel Engineering Co., Kingston, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Littleford Bros., 453 E. Pearl St., Cincinnati
Metal Glass Products Corp., Belding, Mich.
Mixing Equipment Co., 1067 Garson Ave., Rochester, N. Y.
Pfaudler Co., 89 East Ave., Rochester, N. Y.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Scientific Filter Co., 1 Franklin Sq., N. Y.
Sprout, Waldron & Co., Muncy, Pa.

TANKS (for Liquid Soap Dispensing Systems)

Ampion Corp., 4-88—Forty-seventh Ave., L. I. City, N. Y.
Bobrick Mfg. Corp., 15 E. 26th St., N. Y.
Brighton Copper Works, 2163 Western Ave., Cincinnati
Clifton Chemical Co., 247 Front St., N. Y.
Eagle Soap Corp., Huntington, Ind.
Fuld Bros., Inc., 702 S. Wolfe St., Baltimore
Imperial Brass Mfg. Co., 1200 W. Harrison St., Chicago
Moore Brothers Co., 67 Vestry St., N. Y.
Palmer Products, Inc., Waukesha, Wis.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Rochester Germicide Co., Rochester, N. Y.
John Trageser Steam Copper Works, Grand Ave., Maspeth, L. I., N. Y.
U. S. Sanitary Spec. Corp., 435 S. Western Ave., Chicago
West Disinfecting Co., Long Island City, N. Y.

TANKS (Steel Mixing and Storage)

Alloy Prods. Corp., 221 Madison St., Waukesha, Wis.
Alsop Engineering Corp., 100 High St., Milldale, Conn.
S. F. Bowser & Co., Ft. Wayne, Ind.
Brill Equipment Corp., 183 Varick St., N. Y. (Used)
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Edge Moor Iron Wks., 30 Rockefeller Plaza, N. Y.
Filter Paper Co., 57 E. 24th St., Chicago
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
William Garrigue & Co., 9 S. Clinton St., Chicago
General American Transportation Corp., 135 S. La Salle St., Chicago
Graver Tank & Mfg. Corp., 332 S. Michigan, Chicago
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 259—46th St., Brooklyn
Illinois Steel Corp., 208 S. LaSalle St., Chicago
Lancaster Iron Works, 564 S. Prince St., Lancaster, Pa.
J. M. Lehmann Co., 248 W. Broadway, N. Y.
Littleford Bros., 453 E. Pearl St., Cincinnati
Lukens Steel Corp., Coatesville, Pa.
Mixing Equipment Co., 1067 Garson Ave., Rochester, N. Y.
Patterson Foundry & Machine Co., East Liverpool, Ohio
Petroleum Iron Works, Sharon, Pa.
Pfaudler Co., Rochester, N. Y.
Pioneer Tank & Boiler Co., Tulsa, Okla.
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.
Sprout, Waldron & Co., Muncy, Pa.
Struthers-Wells-Titusville Corp., Warren, Pa.
John Trageser Steam Copper Works, Grand St., Maspeth, L. I., N. Y.

TANKS (Wooden Mixing and Storage)

Atlantic Tank & Barrel Co., North Bergen, N. J.
J. H. Day Co., 1144 Harrison Ave., Cincinnati
General Tank Corp., 30 Church St., N. Y.
Hauser-Stander Tank Co., Ivorydale, Cinn.
Kalamazoo Tank & Silo Co., Kalamazoo, Mich.
New England Tank & Tower Co., Everett, Mass.
Pacific Tank & Pipe Co., 334 Market St., San Francisco
H. K. Porter Co., 49th & Harrison Sts., Pittsburgh
Read Machy. Co., York, Pa.
Sprout, Waldron & Co., Muncy, Pa.
Tippett & Wood, Phillipsburg, N. J.

TAR ACID OIL (see COAL TAR RAW MATERIALS)

TAR ACIDS, High-Boiling

American-British Chem. Supplies, Inc., 180 Madison Ave., N. Y.
Barrett Co., 40 Rector St., N. Y.
S. H. Bell Co., 1407 Gulf Bldg., Pittsburgh
E. I. du Pont de Nemours Co., Wilmington, Del.
James Huggins & Son, 239 Medford St., Malden, Mass.
Wm. E. Jordan & Bro. 2590 Atlantic Ave., Brooklyn
Koppers Co., Koppers Bldg., Pittsburgh, Pa.
Monsanto Chemical Co., St. Louis
Neville Co., Pittsburgh
Reilly Tar & Chem. Co., Indianapolis
Shell Oil Co., 50 W. 50th St., N. Y.

TERPENELESS OILS (see ESSENTIAL OILS)

TERPENYL ACETATE (see AROMATIC CHEMICALS)

TERPINEOL

(see also Essential Oils)

van Ameringen-Haebler, Inc., 315 Fourth Ave., N. Y.
Aromatic Products, Inc., 15 E. 30th St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
P. R. Dreyer Inc., 119 W. 19th St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Felton Chemical Co., 603 Johnson Ave., Brooklyn, N. Y.
Firmenich & Co., 135—5th Ave., N. Y.
General Drug Co., 644 Pacific St., Bklyn.
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Hercules Powder Co., Wilmington
Magnus, Mabee & Reynard, 16 Desbrosses St., N. Y.
Ungerer & Co., 161 Sixth Ave., N. Y.

TETRACHLORETHYLENE (see SOLVENTS, ORGANIC)

TETRASODIUM PYROPHOSPHATE

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Blockson Chemical Co., Joliet, Ill.
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
A. R. Maas Chem. Co., South Gate, Calif.
Monsanto Chemical Co., St. Louis
Rumford Chem. Wks., Providence, R. I.
Victor Chem. Wks., 141 W. Jackson Blvd., Chicago
Warner Chemical Co., 405 Lexington Ave., N. Y.

TEXTILE SOAPS

American Soap & Washoline Co., Cohoes, N. Y.
Armour Soap Wks., 1355 W. 31st St., Chicago

TAR ACID OIL
for use in
DISINFECTANTS
and
CLEANING COMPOUNDS

Unusually High in Tar Acids
White-Emulsion and Pink-Emulsion Grades
MADE from LOW TEMPERATURE COAL TAR

PITTSBURGH COAL CARBONIZATION CO.
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Producers and Refiners of Coal Tar and Tar Products

VICTOR CHEMICALS

TRI SODIUM PHOSPHATE
TETRA SODIUM PYRO-PHOSPHATE

ENLIST

FOR THE DURATION

Phosphorus and phosphorus compounds, in which we have specialized for over forty years, play a vital role in the defense of our country. Elemental phosphorus, for example, is used extensively for war purposes.

That defense requirements take precedence over everyday civilian needs is a fact accepted by every patriotic American as a matter of course. For that reason we are confident of your sympathetic understanding should it happen occasionally that our service is not as prompt as formerly.

VICTOR CHEMICAL WORKS

141 W. Jackson Blvd., Chicago, Ill.

Plants: Nashville, Tenn., Mt. Pleasant, Tenn., Chicago Heights, Ill.

TEXTILE SOAPS (Contd.)

Beach Soap Co., Lawrence, Mass.
Chemical Mfg. & Dist. Co., Easton, Pa.
Clifton Chemical Co., 247 Water St., N. Y.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Delta Chem. Co., 4 Payson Ave., N. Y.
J. O. Draper Co., Pawtucket, R. I.
E. I. du Pont de Nemours Co., Wilmington, Del.
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Enterprise Mill Soap Wks., 2231 N. 12th St., Philadelphia
Hockwald Chem. Co., 135 Mississippi St., San Francisco
Arnold Hoffman & Co., Providence, R. I.
Holbrook Mfg. Co., Cole & 18th Sts., Jersey City
Iowa Soap Co., 810 Valley St., Burlington, Ia.
H. Kohnstamm & Co., 91 Park Pl., N. Y.
Laurel Soap Mfg. Co., Tioga St., Phila.
Long Island Soap Co., Meeker Ave. & Bridgewater St., Brooklyn, N. Y.
Los Angeles Soap Co., Los Angeles, Cal.
Geo. E. Marsh Co., 200 Broadway, Cambridge, Mass.
National Oil Prods. Co., Harrison, N. J.
National Soap Co., 357 South 26th St., Tacoma, Wash.
Newell Gutradt & Co., 350 Fremont St., San Francisco
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Puritan Soap Co., 573 Lyell Ave., Rochester, N. Y.
Rome Soap Mfg. Co., Rome, N. Y.
Sandoz Chemical Works, 61 Van Dam St., N. Y.
Scholler Bros, 3301 Amber St., Philadelphia
Geo. E. Sherman Co., 153 Classon Ave., Brooklyn, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
John T. Stanley Co., 642 W. 30th St., N. Y.
Superior Soap Corp., 121 Nostrand Ave., Brooklyn
Swift & Co., Union Stock Yards, Chicago
Ultra Chem. Wks., Inc., Paterson, N. J.
Warren Soap Mfg. Co, 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Jacques Wolf & Co., Passaic, N. J.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

TEXTILE SODA (see SODA)

TEXTILE SPECIALTIES (Oils, softeners, etc.)

American Cyanamid & Chem. Corp., 30 Rockefeller Plaza, N. Y.
Commercial Solvents Corp., 17 E. 42nd St., N. Y.
J. O. Draper Co., Pawtucket, R. I.
E. I. du Pont de Nemours Co., Wilmington, Del.
Emery Industries, Inc., Carew Tower, Cincinnati
Enterprise Mill Soap Wks., 2231 N. 12th St., Philadelphia
Franklin Research Co., 5134 Lancaster Ave., Phila.
Hercules Powder Co., Wilmington, Del.
Arnold Hoffman & Co., Providence, R. I.
Laurel Soap Mfg. Co., Tioga St., Phila., Pa.
Michel Export Co., Inc., 90 Broad St., N. Y.
Napthole, Inc., 15 E. 26th St., N. Y.
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Prods. Co., Harrison, N. J.
National Soap Co., 357 South 26th St., Tacoma, Wash.
National Starch Prods. Co., 820 Greenwich St., N. Y.
Pennsylvania Refining Co., Butler, Pa.
Sandoz Chemical Works, 61 Van Dam St., N. Y.
Scholler Bros., 3301 Amber St., Philadelphia
Geo. E. Sherman Co., 153 Classon Ave., Brooklyn, N. Y.
L. Sonneborn Sons, Inc., 88 Lexington Ave., N. Y.
Ultra Chem. Works, Inc., Kitay Bldg., Paterson, N. J.
Washine-National-Sands, Inc., 37-02 Northern Blvd., Long Island City
Jacques Wolf & Co., Passaic, N. J.
Chas. W. Young & Co., 1247 N. 26th St., Phila.

THALLIUM SULFATE (Rat Poisons)

Foote Mineral Co., 1609 Summer St., Phila.
Jungmann & Co., 74 Trinity Pl., N. Y.
Ore & Chemical Corp., 80 Broad St., N. Y.
Pfaltz & Bauer, Inc., 350—5th Ave., N. Y.

THEATRE SPRAYS

Antiseptol Co., 5524 Northwest Highway, Chicago
Banner Chemical Prod. Corp., 329 Mulberry St., Newark, N. J.
Baums Castorine Co., 200 Mathew St., Rome, N. Y.
Cenol Co., 4250 N. Pulaski Ave., Chicago
Chemical Compounding Corp., 262 Huron St., Brooklyn
Chemical Mfg. & Dist. Co., Easton, Pa.
Chemical Supply Co., 2450 Canal Rd., Cleveland
Chicago Sanitary Prods. Co., 3100 S. Throop St., Chicago
Churchill Mfg. Co., Galesburg, Ill.
Clifton Chemical Co., 247 Front St., N. Y.
Delta Chem. Co., 4 Payson Ave., N. Y.
Eagle Soap Corp., Huntington, Ind.
Elkay Products Corp., 323 W. 16th St., N. Y.
Fuld Bros., 702 S. Wolfe St., Baltimore
James Good, Inc., Kensington, Philadelphia
Higley Chemical Co., Dubuque, Iowa
Hockwald Chemical Co., 135 Mississippi St., San Francisco
Hunt Mfg. Co., Lisbon Rd., Cleveland
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Jansen Soap & Chemical Co., 324 Leavenworth St., San Francisco, Cal.
Lewis Soap & Chem. Co., Oakland, Cal.
Palmer Products, Inc., Waukesha, Wisc.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Rochester Sanitary Prods. Co., 874 Seward St., Rochester, N. Y.
Selig Co., 336 Marietta St., Atlanta, Ga.
J. A. Tumbler Labs., 423 Hanover St., Hanover
Uncle Sam Chem. Co., 329 E. 29th St., N. Y.
U. S. Sanitary Specialties Corp., 435 S. Western Ave., Chicago
Victory Chem. Co., 148 Fairmount Ave., Phila.
World Spray Co., Inc., 5117 Central Ave., Los Angeles

THERMOMETERS (see INSTRUMENTS)

THYME OIL (see ESSENTIAL OILS)

THYMOL (see AROMATIC CHEMICALS)

TIGHT WRAPPING MACHINERY (see WRAPPING MACHINERY)

TIN CRYSTALS (Stannous Chloride)

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J. T. Baker Chem. Co., Phillipsburg, N. J.
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Metal & Thermit Corp., 120 Broadway, N. Y.

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E. I. du Pont de Nemours Co., Wilmington, Del.
Foote Mineral Co., 1609 Summer St., Phila.
Titanium Pigment Co., 111 Broadway, N. Y.
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.

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Hoberg Paper & Fibre Co., Green Bay, Wis.
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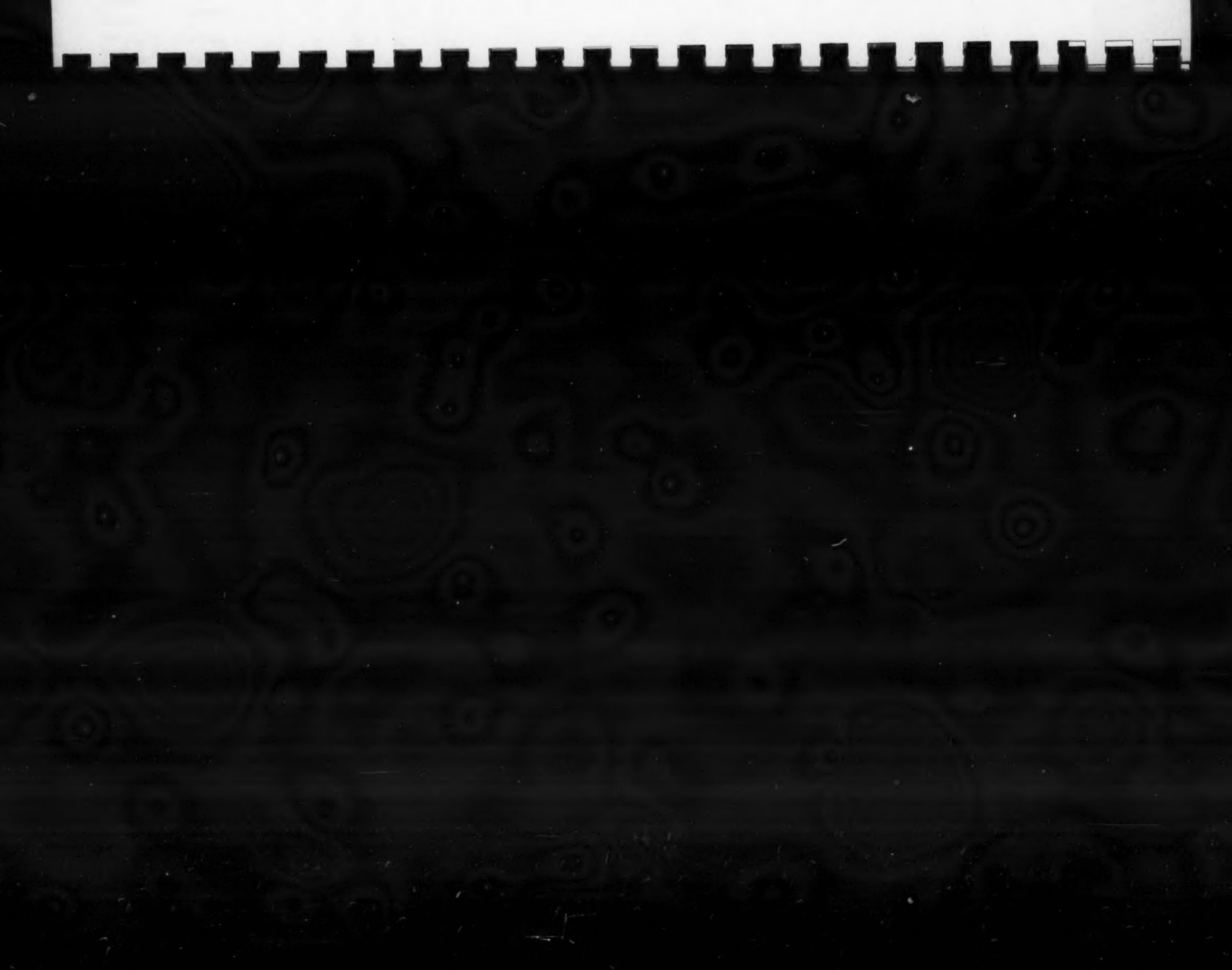
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Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Richards Sales Corp., Warren & Morris Sts., Jersey City, N. J.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Shores Co., Cedar Rapids, Ia.
John T. Stanley Co., 642 W. 30th St., N. Y.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

TOILET SEAT COVERS

Lorco Industries, Clarke & Hornet Sts., Cincinnati
Morton Mfg. Co., 5105 W. Lake St., Chicago
National Towel Bendon Ltd., 12 Stewart St., San Francisco
Sani-Gard Cover Co., 411 W. 5th St., Los Angeles

TOILET SOAP BASE (for Cakes)

Armour Soap Wks., 1355 W. 31st St., Chicago
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Hewitt Soap Co., Dayton, O.
Los Angeles Soap Co., Los Angeles, Cal.
Natl. Oil Prods. Co., Harrison, N. J.
Procter & Gamble Co., Cincinnati
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Swift & Co., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

TOILET SOAP MILLS (see SOAP MACHINERY)

TOILET SOAPS (Cakes)

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Baum's Castorine Co., Rome, N. Y.
Colgate-Palmolive-Peet Co., Jersey City, N. J.
Cudahy Packing Co., 221 N. LaSalle St., Chicago
J. Eavenson & Sons, Del. & Penn Sts., Camden, N. J.
Haskins Bros. & Co., Omaha
Hewitt Soap Co., Dayton, O.
Long Island Soap Co., 29 Bridgewater St., Brooklyn
Lightfoot Schultz Co., 1412 Park Ave., Hoboken, N. J.
Los Angeles Soap Co., Los Angeles, Cal.
National Soap Co., Box 1613, Tacoma, Wash.
Newell, Gutradt Co., 350 Fremont St., San Francisco
North Coast Soap & Chem. Wks., Seattle, Wash.
Procter & Gamble, Cincinnati
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
John T. Stanley Co., 642 W. 30th St., N. Y.
Swift & Co., Chicago
Vliet Soap Co., 638 Monroe St., Brooklyn
Warren Soap Mfg. Co., 51 Waverly St., Cambridge, Mass.
M. Werk Co., St. Bernard, Cincinnati
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

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Commercial Laboratories, Newark, N. Y. State
R. Gesell, Inc., 200 W. Houston St., N. Y.
McKesson & Robbins, 3674 3rd Ave., N. Y.
Geo. A. Schmidt Co., 236 W. North Ave., Chicago
Shores Co., Cedar Rapids, Ia.
Strong Cobb & Co., Cleveland
Allen B. Wrisley Co., 6801 W. 65th St., Chicago

TOWELS, PAPER (see PAPER TOWELS)

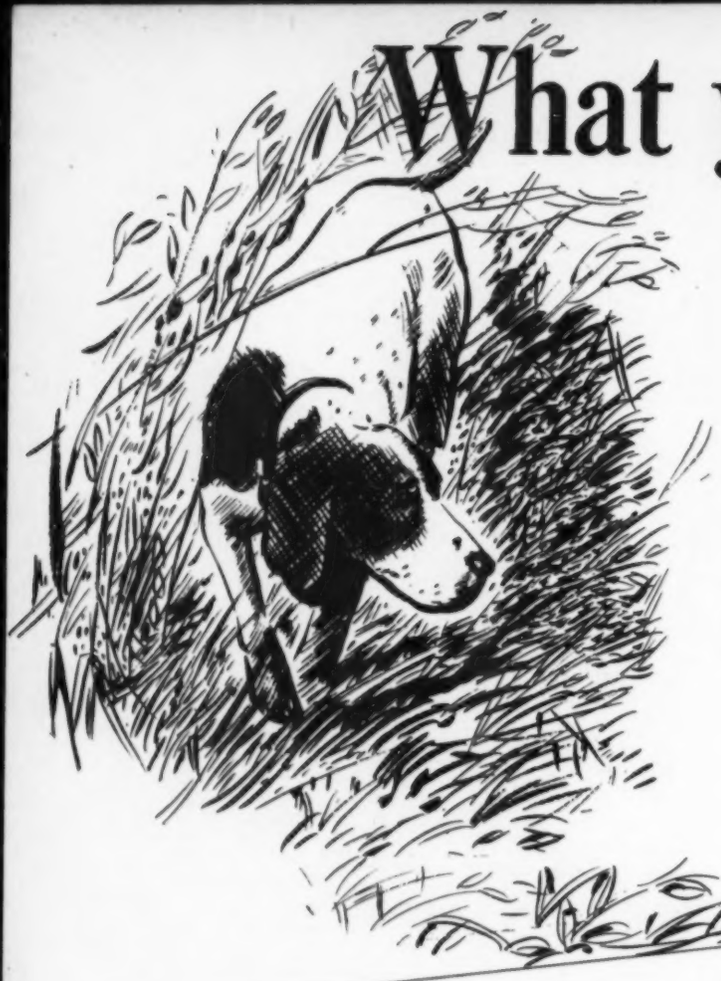
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Fuld Bros., Inc., 702 S. Wolfe St., Baltimore
James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hysan Prods. Co., 58 E. Cullerton St., Chicago
Kranich Soap Co., 60 Richards St., Bklyn.
National Oil Prods. Co., Harrison, N. J.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Superior Soap Corp., 121 Nostrand Ave., Brooklyn

TRISODIUM PHOSPHATE
(see also Brokers and Dealers)

Amer. Agricultural Chem. Co., 50 Church St., N. Y.
American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Blockson Chemical Co., Joliet, Ill.
E. I. du Pont de Nemours & Co., Wilmington, Del.
General Chemical Co., 40 Rector St., N. Y.
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
International Agricultural Corp., East Point, Ga.
A. R. Maas Chem. Co., South Gate, Calif.
Monsanto Chemical Co., 1724 S. 2nd St., St. Louis
Rumford Chem. Wks., Rumford, R. I.
Jos. Turner & Co., Ridgefield, N. J.
Victor Chemical Works, 141 W. Jackson Blvd., Chicago
Virginia-Carolina Chemical Corp., Richmond, Va.
Warner Chemical Co., 405 Lexington Ave., N. Y.

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American Car & Foundry Co., 30 Church St., N .Y.
Consolidated Prods. Co., 15 Park Row, N. Y. (Used)
J. H. Day Co., 1144 Harrison Ave., Cincinnati
Fairbanks, Morse & Co., 900 S. Wabash St., Chicago
Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 265 46th St., Brooklyn
G. B. Lewis Co., Watertown, Wisc.
Schwenk Safety Device Corp., 80 Broad St., N. Y.
Self-Lifting Piano Truck Co., Findlay, Ohio

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Art Tube Co., Irvington, N. J.
Bond Penn Tube Co., 501 Monroe St., Wilmington, Del.
Consolidated Fruit Jar Co., New Brunswick, N. J.
Continental Can Co., 100 E. 42nd St., N. Y.
Globe Collapsible Tube Corp., 28 Columbia Heights, Brooklyn, N. Y.
Hygienic Tube Co., 34 Ave. L., Newark, N. J. (Celluloid)
National Collapsible Tube Co., Providence, R. I.
New England Collapsible Tube Co., New London, Conn.
Peerless Tube Co., Bloomfield, N. J.
Sun Tube Corp., Hillside, N. J.
Victor Metal Products Corp., Brooklyn, N. Y.
White Metal Mfg. Co., 1012 Grand St., Hoboken, N. J.
A. H. Wirz, Inc., Chester, Pa.

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Houchin Machinery Co., Hawthorne, N. J.
Huber Machine Co., 265 46th St., Brooklyn
J. M. Lehmann Co., 250 West Broadway, N. Y.
Machinery & Equipment Co., 225 Sherman Ave., Newark, N. J.
Newman Tallow & Soap Machy. Co., 1051 W. 35th St., Chicago
Prater Pulverizing Co., 1825 S. 55th Ave., Chicago
Stein Equipment Corp., 426 Broome St., N. Y.
Weigh Right Automatic Scale Co., 404 Grant Ave., Joliet, Ill.

VACUUM CLEANERS (Heavy Duty)

Breuer Electric Mfg. Co., 5120 N. Ravenswood Ave., Chicago
Fay Co., 130 Madison Ave., N. Y.
Hild Floor Machine Co., 1313 W. Randolph St., Chicago

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(see also Essential Oils)

Aromatic Products, Inc., 15 E. 30th St., N. Y.
Dodge & Olcott Co., 180 Varick St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Felton Chemical Co., 603 Johnson Ave., Brooklyn, N. Y.
Fries Bros., 90 Reade St., N. Y.
General Drug Co., 644 Pacific St., Brooklyn
Givaudan-Delawanna, Inc., 330 W. 42nd St., N. Y.
Maywood Chemical Co., Maywood, N. J.
Monsanto Chemical Works, 1724 S. 2nd St., St. Louis, Mo.
Verona Chemical Co., Verona Ave., Newark, N. J.

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First Machy. Corp., 819 E. 9th St., N. Y. (Used)
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U. S. Bottlers Machinery Co., 4025 N. Rockwell St., Chicago
Weigh Right Automatic Scale Co., Joliet, Ill.

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American Doucil Co., 125 S. 3rd St., Philadelphia
Baum's Castorine Co., Rome, N. Y.
Blockson Chemical Co., Joliet, Ill.
Chemical Mfg. & Dist. Co., Easton, Pa.
Hubman Supply Co., 225 N. 4th St., Columbus, O.
Jansen Soap & Chemical Co., 324 Leavenworth St., San Francisco, Calif.
Kemiko Mfg. Co., 500 Chancellor Ave., Irvington, N. J.
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Permutit Co., 330 W. 42nd St., N. Y.
Port Huron Detergent Co., Port Huron, Mich.
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Jersey City, N. J.
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Shores Co., Cedar Rapids, Ia.
Solvay Sales Corp., 40 Rector St., N. Y.
Warner Chemical Co., 405 Lexington Ave., N. Y.

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Smith-Weihman Co., 5 Moore St., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
A. E. Starkie, 528 N. Cuyler Ave., Oak Park, Ill.
Strahl & Pitsch, 141 Front St., N. Y.
Strohmeyer & Arpe, 139 Franklin St., N. Y.
Twin City Shellac Co., 340 Flushing Ave., Brooklyn
Will & Baumer Candle Co., Syracuse, N. Y.

WAXES, Synthetic

Atlas Powder Co., Wilmington, Del.
Beacon Co., 89 Bickford St., Boston
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington
Glyco Products Co., 230 King St., Brooklyn
National Oil Prods. Co., Harrison, N. J.
R. F. Revson Co., 144 W. 18th St., N. Y.
Sherwood Refining Co., Englewood, N. J.
Van Dyk & Co., 57 Wilkinson Ave., Jersey City, N. J.
General Dyestuffs Corp., 435 Hudson St., N. Y.

WEIGHING EQUIPMENT (Automatic)

J. L. Ferguson Co., Joliet, Ill.
B. F. Gump Co., 412 S. Clinton St., Chicago
S. Howes Co., Silver Creek, N. Y.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Pneumatic Scale Corp., North Quincy, Mass.
Read Machy. Co., York, Pa.
F. J. Stokes Machine Co., Phila., Pa.
Stokes & Smith Co., 4915 Summerdale Ave., Phila.
Triangle Package Machinery Co., 906 ... Spaulding Ave., Chicago
Vol-U-Meter Co., 710 Ohio St., Buffalo, N. Y.
Weigh Right Automatic Scale Co., Joliet, Ill.

WETTING AGENTS (see also Detergents, Synthetic, and Sulfonated Oils)

American Cynamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Atlantic Refining Co., 260 S. Broad St., Philadelphia
Carbide & Carbon Chemicals Corp., 30 E. 42nd St., N. Y.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Emulsol Corp., 59 E. Madison St., Chicago
General Dyestuff Corp., 435 Hudson St., N. Y.
Hercules Powder Co., Wilmington, Del.
Monsanto Chemical Co., St. Louis
National Aniline & Chem. Co., 40 Rector St., N. Y.
National Oil Prods. Co., Harrison, N. J.
Procter & Gamble Co., Cincinnati
Richards Sales Corp., Jersey City, N. J.
Rohm & Haas Co., 222 W. Washington St., Philadelphia
Jacques Wolfe & Co., Passaic, N. J.

WHALE OIL
(see also Brokers and Dealers)

F. A. Marsily & Co., 15 Whitehall St., N. Y.
Murray Oil Prods. Co., 21 West St., N. Y.
J. H. Redding Co., 17 Battery Pl., N. Y.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
Arthur C. Trask Co., 4103 S. LaSalle St., Chicago
Welch, Holme & Clark, Inc., 563 Greenwich St., N. Y.
Wilbur-Ellis Co., 17 Battery Pl., N. Y.

WHALE OIL SOAPS
(see also Fish Oil Soaps)

James Good, Inc., 2116 E. Susquehanna Ave., Phila.
Hockwald Chem. Co., 135 Mississippi St., San Francisco
National Oil Prods. Co., Harrison, N. J.
National Soap Co., Box 1613, Tacoma, Wash.
Newell, Gutradt Co., 350 Fremont St., San Francisco
North Coast Chemical & Soap Works, Seattle, Wash.
Peck's Prods. Co., 5240 N. 2nd St., St. Louis
Procter & Gamble Co., Cincinnati
Theo. B. Robertson Prods. Co., 700 W. Division St., Chicago
Werner G. Smith Co., 2191 W. 110th St., Cleveland

WHITE MINERAL OILS

Atlantic Refining Co., 260 S. Broad St., Philadelphia
Pennsylvania Refining Co., Butler, Pa.
Petroleum Specialties, Inc., 570 Lexington Ave., N. Y.
H. H. Rosenthal Co., 25 E. 26th St., N. Y.
Sherwood Refining Co., Englewood, N. J.
Werner G. Smith Co., 2191 W. 110th St., Cleveland
L. Sonneborn Sons, 88 Lexington Ave., N. Y.
Stanco, Inc., 2 Park Ave., N. Y.
Standard Oil Co. (Calif.), 225 Bush St., San Francisco
Standard Oil Co. (Ind.), 910 S. Michigan Ave., Chicago

WHITING (see TALC)

WOOD FLOUR

Becker Moore & Co., N. Tonawanda, N. Y.
Innis Speiden & Co., 117 Liberty St., N. Y.
Frank Miller & Sons, 2250 W. 58th St., Chicago
Wishnick-Tumpeer, Inc., 295 Madison Ave., N. Y.
Wood Flour, Inc., Winchester, N. H.

WOOL GREASE (see LANOLIN)

WRAPPING MACHINERY

Consolidated Products Co., 15 Park Row, N. Y. (Used)
J. L. Ferguson Co., Joliet, Ill.
First Machy. Corp., 819 E. 9th St., N. Y. (Used)
Johnson Automatic Sealer Co., Battle Creek, Mich.
J. M. Lehmann Co., 250 West Broadway, N. Y.
Miller Wrapping & Sealing Mach. Co., 16 S. Clinton St., Chicago
Package Machinery Co., Springfield, Mass.
F. B. Redington Co., 112 S. Sangamon St., Chicago
Pneumatic Scale Corp., North Quincy, Mass.
Stokes & Smith Co., 4915 Summerdale Ave., Phila.
Aurelio Tanzi Engineering Co., 430 Jefferson St., Bklyn.

ZINC NAPHTHENATE

Baker & Collinson, Detroit
General Petroleum Corp. of Calif., 108 W. 2nd St., Los Angeles
Harshaw Chemical Co., 1945 E. 97th St., Cleveland
Nuodex Products Co., 312 Division St., Elizabeth, N. J

ZINC OXIDE

American Cyanamid & Chemical Corp., 30 Rockefeller Plaza, N. Y.
Anaconda Sales Co., E. Chicago, Ind.
J. T. Baker Chem. Co., Phillipsburg, N. J.
Chas. B. Chrystal Co., 16 Hudson St., N. Y.
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Merck & Co., Rahway, N. J.
New Jersey Zinc Co., 160 Front St., N. Y.
Orbis Products Corp., 215 Pearl St., N. Y.
Rohm & Haas Co., 222 W. Washington Sq., Phila.
L. A. Salomon & Bro., 216 Pearl St., N. Y.
Western Zinc Oxide Co., Leadville, Col.







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Soap Specifications

By H. P. TREVITHICK

Bureau of Chemistry, N. Y. Produce Exchange

NO really general specifications for soaps and other detergents had ever been written prior to 1936. For many years the Federal Specifications Board had written some specifications for products used by the Government, particularly by the Services, and also some State and Municipal Departments of Purchase had tried to write some for their own purchases. All of these specifications suffered because they were written entirely by consumers, with no consideration being given to producers and their problems of manufacture. In particular, many of these specifications had slight variations in their limits for many items, resulting either in compelling manufacturers to have their products pass the closest limits on all the various specifications to be sure to be able to meet all requirements, or else to manufacture small lots for each sale, a very expensive proposition. Specifications should be so drawn that the standard material, produced by carefully controlled processes in good factories, will pass the requirements, and they should not contain "trick" specifications which would require special handling in manufacture.

Over the course of a number of years, the American Oil Chemists' Society has developed and written very satisfactory methods of analysis for soaps and detergents, but does not write specifications at present.

After studying the problem for several years, the American Society for Testing Materials formed a committee, D-12, to write specifications for soaps and other detergents. As with all other committees of the ASTM, this committee consists of producer, consumer and general interest members, with the specific requirement, applicable to all these committees, that the consumer and general interest members shall be not less than 51 per cent of the total membership of the committee. This committee has worked on this problem for five years, and has written quite a few specifications, not only for various soaps but also for other detergents such as caustic soda, soda ash, phosphates, silicates, etc.

Soap is such a well known commodity that the writing of a definition seems very simple, and yet, Committee D-12 of the ASTM was compelled to spend considerable time writing and rewriting such a definition, which now reads as follows: Soap—The product formed by the saponification or neutralization of fats, oils, waxes, rosins, or their acids, with organic or inorganic bases.

Soap, as commonly understood, is usually the sodium or potassium salts of fatty acids, with or without the addition of rosin. In writing specifications for it the methods of manufacture, hot, cold or semi-boiled, and the uses to which the soap will be applied, must be considered.

Specifications are never written until a product has been developed and used; the difficulties encountered in its use will then establish the items which need to be specified, and similarly, those items which are unnecessary.

Most specifications for soap include one or more of the following items:

Moisture, maximum per cent
Sum of free alkali, total matter insoluble in alcohol, and sodium chloride, maximum per cent
Free Alkali, calculated as NaOH, maximum per cent
Free Acid, calculated as Oleic, maximum per cent
Matter insoluble in alcohol, maximum per cent
Matter insoluble in water, maximum per cent
Salt, calculated as NaCl, maximum per cent
Unsaponifiable saponifiable matter, maximum per cent
Rosin
Sugar
Foreign matter
Anhydrous soap
Titre
Iodine Value
Saponification value
Particle size

They should also include in every case, the methods of sampling and analysis.

Further, since soap is subject to gains or losses in weight, due to changes in moisture content, depending on atmospheric and storage conditions, all specifications should contain a formula for calculating the weight and analysis, as received, to the weight and analysis of the material when shipped.

Soap as made by the boiled process contains 35 per cent of water because in salting it out the soap retains that amount in forming a good "neat" soap; and of course some soaps are finished without the removal of this water, particularly laundry soaps, "boiled down" soaps, etc. However, when "powdered" and "chip" soaps are made, the soap must be dried in making these products, and the moisture content is then reduced to 12 per cent, giving 88 per cent soap, or 8 per cent, giving 92 per cent soap. It is therefore necessary to have a specification for moisture on almost any soap.

When soaps are stored, the moisture content will change accord-

ing to climatic conditions, and in most cases, the moisture dries out. This creates a shortage in weight, but since no actual soap is lost by this drying out, the buyer does not lose in actual value. However, if a claim for short weight is made, the seller is unjustly penalized because the shortage in weight is due to evaporation of water. For that reason, we have usually added a clause in our specifications, referring to this variation in moisture content, and a formula by which the original weight shipped can be calculated. We always set an average normal moisture content for the particular type soap, covered in the specifications, and then use the following formula:

$$W = \frac{R \times (100-L)}{(100 - \text{normal moisture})}$$

Where W = net weight purchased, or to be paid for

R = weight received

L = moisture content as received

By this formula we calculate the actual shipping weight, and correct value of the merchandise. If W = more than 100 per cent, the buyer waives the right to invoice for the excess. On materials which do not change their moisture content during storage and shipping, this clause is not necessary, but it is very valuable on soaps and similar products.

The sum of the free alkali, alcohol insoluble, and salt, gives a very good perspective of the type of material other than soap present in the sample, and is a very valuable item in most specifications.

Free alkali is left in small amounts in practically all soaps, the amount varying from 0.1 per cent in good toilet soaps to 0.5 per cent or more in rough cleansers. It has a slightly harsh roughening effect on the skin, if present in too large amounts, but, according to some theories on soap detergency, a slight amount is necessary for satisfactory cleaning. In rough cleansers, particularly in soap powders used for cleaning floors, etc., 0.5 per cent or more is necessary to properly wash the floors. In such cases, mops and wringers are used, so that the hands do not need to come in contact with the free alkali.

Free acid is sometimes left in soaps due to incomplete saponification, or is added to them due to a desire to have a soap absolutely neutral or containing no free alkali.

The matter insoluble in alcohol includes the carbonates and bicarbonates, a portion of the salt, any incidental impurities of the fat or alkali, and any fillers such as pumice, silicates, talc, etc. This item should be included in nearly all specifications as it separates toilet soaps from all other types of soap, and indicates whether any fillers have been added.

The matter soluble in alcohol contains the soap and moisture, and this figure, minus the moisture, has been considered by some analysts as the true soap. This, however, is not necessarily true, as any other material in the soap which is soluble in alcohol, would be calculated as soap. Thus, sugar and glycerin would be soluble in alcohol but are certainly not to be classed as soaps. At times when glycerin was very cheap, we have received samples containing 6 to 7 per cent of glycerin which the producer, by the above method of calculation, was reporting as soap. A test for the true anhydrous soap present disclosed the truth.

The matter insoluble in water should also be included in most soap specifications. This item shows the presence of any filler such as talc, silica, pumice, etc., and also, when fillers are absent, is an indication of the cleanliness of the raw materials, and the care used in manufacture. If the test is made on the alcohol insoluble matter, care must be taken not to dry the alcohol insoluble before adding the hot water, as any water soluble silicates present will become dehydrated by the heat and so water-insoluble, leading to erroneous results.

A specification for salt is also valuable. The amount of salt present indicates the care used in washing the soap. In the small amounts present normally, however, it does not affect the lathering and detergency powers of the soap.

A specification for unsaponified saponifiable matter is sometimes valuable, particularly on superfatted toilet soaps, where the presence of small amounts of fat tend to have a softening effect on the skin, neutralizing the effects of the free caustic. Ordinarily there is none left in boiled soaps, as all the fat has been saponified in the process of manufacture. Cold process and semi-boiled soap may contain unsaponified fats, and in some boiled toilet soaps excess fat may be deliberately added for the softening effects.

Rosin is added to laundry soaps for two reasons. It is cheaper than fat and thus reduces the cost of the soap, but it also has detergent values of its own and thus can not be considered an adulterant. It is a valuable ingredient of laundry soaps, but has not been much used in toilet soaps. Thus specifications for toilet soaps have in the past usually included an item "free from rosin." However, such provisions would seem to be out of place in specifications for the duration of the war. Shortages of soap oils, particularly coconut and palm kernel, are already stimulating use of rosin, even for toilet soap use, because of its essential contribution to quick lathering.

Sugars are used in making soaps transparent, but in all soaps, other than transparent soaps, they add nothing to the value of the soap and the phrase "sugar free," could well be used in most toilet soap specifications.

Anhydrous soap means the actual amount of real pure soap present in the material. This is the actual soap in the product being manufactured and sold, and all soap specifications should include this item. This is important not only in all toilet and laundry soaps, including chip and powdered soaps of 88 per cent and 92 per cent soap content, but is especially valuable in soap powders.

Soap powders are a mixture of soap and one or more builders, usually soda ash, and as the soap is valued at ten times the value of the soda ash, the amount of soap present should determine the price of the soap powder. Standard soap powders should contain a minimum of 15 per cent of soap, but there are many alkaline detergents on the market containing much smaller amounts of soap, even as low as 2 per cent. Such compounds have value in doing rough cleaning on floors, etc., particularly where the cleaning people do not appreciate values and waste much of the cleanser, but it is manifestly unfair competition to sell them in competition with the standard powder containing 15 per cent of soap. They should be priced on the actual soap content.

Titre is an item of particular value to the chemist, to give an idea of the source of the fat, but it is also useful in evaluating soaps for textile use, as it gives a good indication of the solubility of the soap and the ease with which rinsing will remove it from the fabric. Higher titred soaps are less soluble and more firm, and therefore are valuable as toilet soaps, but low titred soaps are more soluble and therefore more easily rinsed from textiles.

Iodine value and saponification value are only of interest to the chemist except where soaps contain a specification that a particular fat or blend of fats must be used, and then these values and the titre would indicate whether that particular requirement has been fulfilled.

Lathering can be measured fairly satisfactorily but is not a good item for specifications, except where it is used as a general term, without specific limitations. Thus we can and do specify that certain soaps "shall lather freely in soft water," but we do not specify exact details and limitations of this test.

Detergency is another item which has been discussed and studied for many years. A committee of the American Oil Chemists' Society worked on this problem for many years, using the launderometer, but there were so many variables that the committee could not evolve a satisfactory standard test, which would give concordant results in different laboratories. One of the sections of Committee D-12 has also worked on this problem for five years and seems now to be optimistic of achieving results, but the problem is not yet solved to the point where we believe that a satisfactory procedure can be established.

Particle size is of value only for powders to indicate the fineness of the grinding. A satisfactory procedure for sifting such samples has been arranged but few of the specifications already prepared have needed or carried actual limits for sifting tests.

The use of standard specifications such as the ASTM has prepared is very advisable. These have been prepared with the assistance of all the major soap producers, and represent standard articles of merchandise, which are produced in large quantities, and priced reasonably. If these standard specifications are modified, changes in production are entailed, which always increases costs. Sometimes, even a separate batch will have to be prepared for particular orders on such changed specifications and this is a very expensive procedure. It is always advisable to use standardized merchandise, if possible, as the quality of such products is always dependable, and usually satisfactory to the consumer.

The use of standard methods of analysis is essential, also. These methods have been written by the American Oil Chemists' Society, and the American Society for Testing Materials, and have been adopted by the American Chemical Society so that the three societies have identical methods. If any other methods are followed in sampling or analysis, the results will naturally be different and a fruitful cause of unending argument. These ASTM specifications have been written and adopted after collaborative testing by these methods of analysis and the limits in the specifications are based upon the results of this work. Any other methods of test will give results varying from those given by these methods.

REVISIONS IN SOAP SPECIFICATIONS

Because of the shortages of many raw materials and the necessity of building up glycerine stocks for war purposes, Committee D-12 of the American Society for Testing Materials has modified all its existing specifications for soaps and detergents by the addition of the following requirement: "This soap must be manufactured in conformity with the regulations of WPB, with reference to content of glycerine, fat stocks, etc., anything in these specifications to the contrary notwithstanding." In addition it has also adopted new alternate emergency provisions, modifying existing specifications, to apply for the duration of the war where existing specifications cannot be carried out. Specifications of government bureaus and the U. S. Bureau of Standards are also in process of review in many instances to bring them into conformity with the expressed government purpose of conserving glycerine.

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Paint Cleaners

THE type of product required to remove grease and soot easily and efficiently from painted walls is one with high emulsifying and dispersing power. A liquid that merely wets the soil without also being able to disperse it, is of small value. Since a great deal of labor is involved in washing walls, which makes it a relatively costly procedure, the washing is usually not done until the walls become noticeably spotted and darkened. This means that a very substantial amount of dirt has to be removed, requiring real detergent action.

While an excellent cleaner, a solution of ordinary soda soap, applied to a solid surface tends to leave a light film of soap on that surface which will be more or less sticky in nature. Although this leaves the surface looking clean, it will become soiled much more quickly afterward because particles of soil will adhere to the soap film. A proper detergent for paint is one which is much more soluble in water than ordinary soda soap, so that it can be removed completely or very nearly so, with one quick rinse with clear water.

For painted walls a dilute solution of trisodium phosphate has been widely used. This makes a good cleaner, but particular care must be observed not to make the solution too concentrated. For a paint cleaner, about a tablespoonful of trisodium phosphate to a gallon of water is enough. A strong solution of this salt is a paint *remover* which actually destroys part or all of the paint film itself, depending on concentration and time of contact. Even a dilute solution of tri-sodium phosphate has a rather strong cleaning action, suitable for flat paints rather than for gloss paints. Soda ash, less alkaline than trisodium phosphate, can also be used for cleaning walls but it is not as effective as the phosphate.

To clean enamel, gloss paint, varnish, and lacquer, a soap, preferably a potash soap because of its high solubility, is one of the best cleaners. Soap builder in the form of a moderate proportion of alkaline salt, will enhance the suspending and emulsifying power of the soap solution. Naturally anything that can be used on a gloss finish can equally well be used on a flat finish, although the reverse of course does not hold. An alkaline salt like trisodium phosphate, used to build soap rather than as a cleaner by itself, will decrease the amount of soap needed, without giving too harsh an effect. After cleaning with potash soap, any soap residue can be easily removed with a rinse of warm water.

Many household soap products today contain an addition of tetrasodium pyrophosphate to avoid the precipitation and loss of soap in hard water. The same principle can be applied to advantage to paint cleaners containing soap, pyrophosphate being a soap saver in the presence of calcium and magnesium salts. A few per cent of tetrasodium pyrophosphate is usually sufficient, although the amount naturally depends somewhat on the hardness of the water to be used.

More recently attention has been focused on products based on the synthetic detergents, that is the non-soap, non-alkaline organic surface active agents. These include the sulfated fatty alcohol derivatives, alykl sulfonates, and others, sold under various trade designations such as lamepons, sapamines, nacconols, aerosols, igepons, tritons, gardinols, etc.

The advantage of these newer products is their complete neutrality in solution, and accordingly their harmlessness to any type of painted or varnished surface. In addition, they are good detergents and are generally equally effective in acid or alkaline media, hard or soft water. Their higher cost has retarded their use somewhat, but their sale is expanding, in the form of both liquids and powders, either ready for use or for dilution with water. For painted surfaces which are subjected to frequent washing, they appear to have marked advantages over other products for the purpose, especially in preserving the life and lustre of the paint.

With paint cleaners, commercial products can be varied in a multitude of ways. Branded cleaners appear on the market as liquids, pastes and powders, which makes a convenient classification for discussion purposes, even though the ingredients in any one class are not necessarily related.

Liquid Cleaners

Some of the liquids are so dilute that they are advertised as requiring no water, no rinsing, therefore only one application, a cloth being moistened with the cleaning fluid and rubbed over the painted surface. An example is a product containing about 94 per cent of water, about a half per cent of potash soap, and a little borax, ammonia, and soda ash, the three totaling about 5 per cent. Borax possesses no virtue either as a cleaning agent or as a soap builder. It is probably put in simply because of its cheapneses.

Another liquid contains over 98 per cent of water, again with the

* From *Soap and Sanitary Chemicals*, May, 1941.

idea of avoiding the rinsing operation. Present in a total amount of about 1.5 per cent is a mixture of the following ingredients: Sugar, an oleate soap, a synthetic detergent in the form of fatty alcohol sulfate, trisodium phosphate, sodium thiosulfate, and ammonia. What the sugar and sodium thiosulfate are for is anybody's guess. Like the first product described, this one too, is a good cleaner, since it contains enough soap, soap builder, and synthetic detergent to give a strong cleaning action without being at all harsh.

Most of the liquids are more concentrated than the two just discussed, the directions being to use with water and to follow the cleaning with a rinse with clear water. Theoretically this is sounder practice, as it leaves the surface of the paint clean and free from a deposit of soap.

A soap product for cleaning woodwork contains about 30 per cent of potash soap and 1 per cent of excess oil to give a particularly mild product for use on gloss paint, varnish and shellac. This, of course, is a concentrated solution to be diluted with water, the directions calling for 1-2 tablespoonfuls to a quart of water. Cleaning is to be followed by a rinse after which the paint is rubbed dry. The excess oil would tend to leave a light film on the surface to promote luster. This is a superfatted soap similar in some ways to those used in shaving products where a particularly mild and non-alkaline effect is desired. It is the kind of product about which it could be said that it harms nothing that water will not harm.

Essentially a 3 per cent solution of trisodium phosphate, another liquid is sold for use without dilution, to be followed by rinsing. Although this is a good paint cleaner, it is apt to dull the surface of a gloss finish, particularly with continued use.

A quite different type of liquid is an emulsion of kerosene and water, about 5 per cent of triethanolamine soap serving as emulsifying agent. Since the liquid is to be applied without dilution, this is using an unusually high concentration of soap. The kerosene is a grease solvent and attacks the greasy base of the soil very quickly. Because of this double action, the cleaner should be highly efficient in loosening the soil. There is some question as to whether a rinse of clear water would remove all of the kerosene, of which the original product contains about 60 per cent. This formula approaches that of some furniture polishes, and may be intended as much for that as for cleaning paint.

Similar to the preceding product in some ways, in that it contains kerosene emulsified in water with soap as the emulsifying agent, another liquid contains in addition about 7 per cent of colloidal clay. The proportion of kerosene is less than 20 per cent, that of soap about 6 per cent. Applied without dilution, here again we have the marked detergent effect of a high concentration of soap plus the solvent effect on grease or kerosene. Colloidal clay makes a good addition, particularly for this kind of product, so that it is surprising that more of them do not contain it. The clay acts by increasing the dispersing power of the soap. In the presence of the clay, less soap is required to give the same detergent effect.

Paste Products

Very similar to one of the liquids described is a paste soap containing excess oil, the concentration of soap merely being increased to the point where a paste rather than a liquid results. The soap content is about 35 per cent of potash soap. Dissolved in water to give a simple soap solution, this is naturally suitable for many cleaning purposes where it seems desirable to avoid any marked degree of alkalinity.

Since Venetian blinds have come into rather wide use, a number of specialties have been put on the market as Venetian-blind cleaners. One such is a paste soap. Being made with soda soap, this contains much less soap than the potash paste products, namely, about 7 per cent. With this, is a builder in the form of 3 per cent of sodium silicate. The paste is supposed to be rubbed over the blinds to remove the soil, then rubbed off in turn with a clean wet cloth. Paste soap should give very effective cleaning, silicate being a good builder for it, but the soap has to be removed with care, which is naturally a laborious process. The advantage of rubbing on a paste cleaner is that it does not drip when applied to the slats, the problem being somewhat different from that of washing walls or ordinary woodwork.

A paste product sold to "clean and restore the luster to enamel, varnish and lacquer" contains naphtha, mineral oil, and water, with soap as emulsifying agent,—also glycerine, carnauba wax, and tripoli —quite a complex mixture, in fact in principle very like some of the automobile cleaner-polishes. Such a product is better for attack on grease than on a sooty type of soil. Tripoli, a mild abrasive, loosens solid soil, but so much friction should hardly be necessary in cleaning woodwork. The carnauba wax is meant to leave a film of wax as a polish to give a lustrous finish. While this product would clean, it also is supposed to function as a wax polish and is offered for special uses with this in mind.

Powdered Products

Powdered paint cleaners are essentially variations of alkaline salt mixtures. Instead of selling a dilute solution of trisodium phosphate, the salt or some combination of salts is sold to be dissolved in water. These products are more suitable for institutional cleaning where the object is to get a quick cleaning with a minimum of labor. Their high alkalinity makes them harsher in action than soap.

One such powder is a mixture of about 92 per cent soda ash with 8 per cent of soap, a tablespoonful dissolved in a gallon of water giv-

ing the cleaning solution. This being inexpensive, also has an appeal in institutional cleaning. A similar mixture contains about 30 per cent of trisodium phosphate, 60 per cent of hydrated sodium carbonate, and 8 per cent of soap. This gives a more alkaline solution than the first powder, since trisodium phosphate is a stronger alkali than soda ash. It is a quick cleaner, but is not suitable for gloss paint.

A powdered product claimed to be "especially adapted to washing painted and enameled surfaces" contains about 9 per cent of soap, 20 of soda ash, and over 60 of crystalline silica. Use of such a strong abrasive in a paint cleaner is considered unwise as it will scratch if rubbed directly on the paint. If the powder is stirred up in water, as recommended by the manufacturer for cleaning painted walls, the abrasive will pretty much settle to the bottom of the pail, the dissolved soda ash and soap then doing the cleaning. Such a product is more of a scouring agent than anything else, of the type meant for the scouring of tile and terazzo floors. What the manufacturer is probably trying to do is to make his product tooinclusive. He may sell it primarily for industrial cleaning, for factory floors and such places, but may want to dress it up with broader claims. It seems better to know what a product is good for and restrict claims to such uses.

Resembling flour in appearance, a paint cleaner quite different in type is based on about 70 per cent of cornstarch. With this is mixed about 14 per cent of trisodium phosphate and 7 per cent of soda ash. The powder is gradually stirred into water to make a thin paste, which is rubbed over the wall, then wiped off while still wet. This is a little like the colloidal-clay cleaner. The starch forms a colloidal suspension which is highly adsorptive in character, picking dirt off the wall by preferential adsorption after the dirt has been wet and loosened by the alkaline salt solution. This is supposed to be a method which avoids scrubbing, but it does not justify any claims for safe or mild action, since the alkali is used in fairly concentrated solution.

A powdered cleaner having a mild bleaching action to assist in the removal of stains contains a patented compound of trisodium phosphate with sodium hypochlorite, containing 1 per cent or so of available chlorine. Mixed with 65 per cent of this special compound are 23 per cent of soda ash and 12 per cent o sodium silicate. This seems to be a paint cleaner only incidentally, being recommended more particularly for dishwashing and the laundry, used in conjunction with soap in the latter case. While the manufacturer apparently did not have this in mind, some such cleaner might have a place for washing the white walls of operating rooms or similar surfaces.

If one wished to develop an antiseptic cleaner, sodium hypochlorite solution—ordinary chlorine bleach—could be added to a cleaning liquid in a concentration equivalent to 1 per cent of available chlorine. Such a solution has to be alkaline to prevent the decomposition of the hypochlorite, which means that it would tend to make the paint dull, but that is not of first importance in places where the use of such a product would be appropriate. Sodium hypochlorite is not sold in powder form, so that in making up a powder the patented phosphate-hypochlorite compound may be used, or solid sodium chlorite, $NaClO_2$, a compound similar in bleaching action to hypochlorite.

Somewhat related to paint cleaners are a few other types of products which will be discussed only briefly. One is a powdered material containing about 90 per cent gum arabic and 10 per cent gelatin. Stirred into water to make a thick paste, this is applied to walls to fill in the pores and give a smooth surface. Such a dried gum film can be washed with plain water.

Rust remover for paint to remove rust stains around radiators, etc., is sold, consisting of powdered oxalic acid. Dissolved in water this can be used to remove rust spots wherever they occur, whether on paint, tile, porcelain or fabric. The only place where oxalic acid should not be used to remove iron stains is in the kitchen sink, as this consists of vitreous enamel which is alkaline in character and which would be attacked by any acid, even oxalic acid. The porcelain in the bathroom, on the other hand, is an acid type of material and is not injured by oxalic acid. Whenever used, directions for products containing oxalic acid should emphasize complete rinsing with clear water.

Paper Cleaners

Products developed especially for removing soiled spots from wallpaper, window shades, and calcimine, are putty-like pastes which are kneaded into soft balls before being rubbed over the soil. The latter is removed by adsorption only, no detergent action being involved. Calcimine, such as that used on the ceilings, has to be treated the same as wallpaper as it is not a true paint, but is originally dispersed in water and hence wet and loosened by water. These special cleaners have a base of 35-40 per cent ordinary flour, 15-18 per cent common salt, 1 per cent of kerosene or mineral oil or perhaps linseed oil, with 40-50 per cent of water.

Rotenone and Rotenoids

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ONE of the most amazing developments in American agriculture during the past decade has been the rapid growth in the use of derris, cube, timbo, and barbasco as insecticides. These plants, all closely related botanically and belonging to the family Fabaceae, owe their toxicity to rotenone and a group of structurally related compounds called rotenoids.

Proprietary insecticides containing derris extractives were manufactured in Great Britain as early as 1911 and were imported into the United States about 1915. Derris root was not imported in commercial quantity until 1931. The trade then grew rapidly; in 1932 the importation was 17 long tons and in 1933, 257 long tons. Cube, which is *Lonchocarpus* of Peruvian origin, became commercially available in the United States in 1931, the total importation in that year amounting to 3,979 pounds. Timbo, which is *Lonchocarpus* of Brazilian origin, was first imported in significant quantity in 1935, in which year 154,323 pounds were brought in from the state of Para, Brazil. The first official figures on the importation of *Lonchocarpus* are for the year 1936. Table 1 presents the data on both *Derris* and *Lonchocarpus* for the years 1936 to 1940, inclusive.

The magnitude of these figures is better appreciated when they are converted into pounds of insecticidal material as applied in the field. Most of the derris, etc., is used in the form of a dust made by diluting the powdered root to a rotenone content of 1 per cent. Assuming a rotenone content of 4 per cent in the imported root (and much of it contains 8 to 10 per cent rotenone), the 6½ million pounds of crude and powdered root imported in 1940 would make over 25 million pounds of insecticidal dust.

The Cultivation of Rotenone-Bearing Plants

Of the more than 80 species of *Derris*, only two are cultivated, *Derris elliptica* Benth. and *D. malaccensis* Prain (Great Britain Imperial Institute, 1940.

Derris elliptica is found in the Malay Peninsula, the East Indian Archipelago, and the Philippines. In the natural state it is a woody climber of large size, bearing clusters of pale rose-pink flowers which turn to buff as they age. Of the cultivated forms of this species, Changi No. 3 is one of the more important. The plants are strong and vigorous and remarkably free from attack by insect pests. On a moisture-free basis their roots, when 15 months old, average 12 to 13.5 per cent rotenone and nearly 30 per cent ether extract; an individual plant from one of the better clones contained as much as 15.25 per cent rotenone.

Derris malaccensis, which grows in the Malay Peninsula, differs from *D. elliptica* in habit and in other ways. The cultivated form has come to be regarded as a separate variety, *D. malaccensis* var. *sarawakensis* Hend. The roots of this species contain little or no rotenone but average 19 per cent or more ether extract.

In the Netherlands Indies a variety of *Derris elliptica* called Toeba woeloeng L.C.B. is grown, which has yielded over 10 per cent rotenone. This variety is similar morphologically to Changi No. 3, and it is possible that the two may be identical.

In the Philippines derris root averages 4 to 5 per cent rotenone. Although derris is found in French Indo-China, Ceylon, Polynesia, and Brazil, the rotenone content of the roots is usually low and little use is made of them commercially.

Of the known constituents of derris root only two, rotenone and levodeguelin, have noteworthy toxicity to insects. Certain other constituents, for example, toxicarol, are highly toxic to goldfish but only feebly so to insects.

The insecticidal constituents of *Lonchocarpus* and *Tephrosia* have not been so thoroughly studied as have those of *Derris*, but rotenone and deguelin are known to be present. Toxicarol was first isolated from *T. toxicaria*, but it has never been found in *Lonchocarpus*.

Jones (1939) reported the presence of a minute quantity of alkaloidal material in derris, cube, and timbo roots. This material proved nontoxic to mosquito larvae at a concentration of 1:10,000.

Although their structure is fully known, rotenone and rotenoids have not been synthesized and there is little likelihood of this being accomplished. None of the compounds of analogous structure that have been prepared have insecticidal value, and the only derivative of rotenone possessing toxicity is dihydrorotenone. We shall be compelled to depend upon certain leguminous plants for our supply of rotenone and the rotenoids for some time to come.

* Reprinted by permission from *Journal of Economic Entomology*, October, 1941.

Methods are now available for accurate chemical analyses of rotenone and deguelin, separately and together. Rotenone is best determined by extracting the finely powdered root with chloroform, converting the rotenone in the extract to the solvate it forms with carbon tetrachloride, and filtering and weighing this compound, $C_{23}H_{22}O_6.CCl_4$, the rotenone content of which is 72 per cent (Jones & Graham 1938). This method has been adopted as "official, first action" by the Association of Official Agricultural Chemists.

The red color test of Goodhue (1936) is used to determine rotenone plus deguelin in an extract of derris, cube, timbo, or *Tephrosia*.

Jones (1941) has recently prepared a review of all chemical methods that have been proposed for the evaluation of rotenone-bearing plants.

Pharmacology of Rotenone and the Rotenoids

A great deal of work has been done on the pharmacology of rotenone and the rotenoids. Geoffroy (1892) tested pure rotenone extracted from *Lonchocarpus nicou* upon frogs and rabbits. The early work on the pharmacology of *Lonchocarpus* has been referred to by Roark (1936, 1938b), who also reviewed the pharmacology of *Tephrosia* (Roark 1937). Haag (1941), has recently completed an exhaustive review of the pharmacological literature on rotenone and related compounds. The following information is taken mostly from this work.

When finely powdered undiluted derris (rotenone content 9.6 per cent) is applied to the human skin, mild irritation is sometimes produced, particularly where two skin areas touch. This local reaction has practically always disappeared within 24 hours after removal of the material. Grinders of derris and cube roots guard against irritation by requiring their employees to bathe frequently and to wear clothing designed to minimize contact with the dust. Derris, as well as rotenone, also produces a sensation of numbness on the mucous membranes of the mouth and throat, which lasts for three or four hours.

Derris (or rotenone) administered to laboratory animals (dogs and cats) by mouth, by vein, or by inhalation promptly caused nausea and vomiting, even when dose was so small as to provoke no other appreciable physiological response. This emetic action should have some practical significance, because individuals having inadvertently ingested derris would in all probability expel much of the material.

As the result of laboratory feeding tests upon guinea pigs, white rats, and rabbits, Haag concluded that the toxicity of derris does not depend solely upon its rotenone content. For example, the acute toxicity of derris powder (9.6 per cent rotenone) when fed to rabbits was five times that of pure rotenone. The acute toxicity of lead arsenate when fed to rabbits is 30 times, of nicotine 100 times, and of strychnine 700 times that of rotenone.

Haag & Taliaferro (1940) found that the growth of young male rats was not affected when cube (4.7 per cent rotenone and 19.7 per cent total extractives) was administered in food in amounts up to 300 parts per million for 150 days. The danger of chronic poisoning from the daily consumption of foodstuffs treated with rotenone-bearing sprays or dusts is remote.

Cassil (1941), in an analytical and statistical study of derris residue on marketable cabbage, has shown

Table 1—Imports of Rotenone-bearing Roots into the United States[1]

	1936		1937		1938		1939		1940	
ITEMS AND COUNTRY OF ORIGIN	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value	Pounds	Value
Derris root, crude:										
British Malaya	332,251	$ 69,182	401,975	$72,613	583,035	$68,279	1,877,800	$196,159	1,842,087	$195,286
Philippine Islands	149,505	21,626	110,528	14,046	23,391	3,263	228,632	20,360	229,465	17,520
British India	.....	.....	.....	.....	.....	.....	10,972	996	.....	.....
Netherlands Indies	28,581	5,145	57,524	10,609	136,235	21,617	184,575	27,952	996,845	132,430
French Indochina	.....	.....	.....	.....	.....	.....	33,069	3,968	143,911	13,968
British East Africa	.....	.....	.....	.....	.....	.....	.....	.....	8,664	1,368
Other British Indies	.....	.....	314	63	.....	.....	.....	.....	.....	.....
United Kingdom	.....	.....	2,257	449	.....	.....	.....	.....	.....	.....
Panama	.....	.....	54	11	.....	.....	.....	.....	.....	.....
Total	510,337	95,953	572,652	97,791	742,661	93,159	2,335,048	249,435	3,220,972	360,572
Cube, timbo, or barbasco root, crude:										
Brazil	508,570	34,044	197,892	16,677	58,979	2,879	146,365	9,477	387,413	28,580
Colombia	1,200	156	.....	.....	.....	.....	.....	.....	.....	.....
Peru	171,600	19,350	378,259	37,487	476,760	32,777	1,640,964	128,141	2,225,347	185,840
Venezuela	22,750	1,775	.....	.....	55,115	8,167	119,865	16,728	74,163	10,546
Total	704,120	55,325	576,151	54,164	590,854	43,823	1,907,194	154,346	2,686,923	224,966
Derris, cube, timbo, or barbasco, advanced in value (dutiable):										
Brazil	1,124,936	172,239	1,263,773	190,844	1,733,755	245,391	838,717	107,347	658,920	85,896
Netherlands Indies	.....	.....	.....	.....	.....	.....	18,032	5,095	.....	.....
Philippine Islands	.....	.....	.....	.....	.....	.....	33,171	2,775	.....	.....
United Kingdom	.....	.....	.....	.....	2,240	828	6,720	2,154	.....	.....
Total	1,124,936	172,239	1,263,773	190,844	1,735,995	246,219	896,640	117,371	658,920	85,896
GRAND TOTAL	2,339,393	$323,517	2,412,576	$342,799	3,069,510	$383,201	5,138,882	$521,152	6,566,815	$671,434

[1] From data furnished by the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce.

that five applications of derris-clay dust (1 per cent rotenone) at the rate of 20 pounds per acre gave an average derris residue of 36.5 parts per million before rain. The residue dropped to 3.6 parts per million after rain, and when the outer leaves had been stripped to produce "U. S. No. 1 stripped" the residue was only 1.9 parts per million. Statistical calculations show that among 11,600 heads from a single acre, one U. S. No. 1 head might be encountered that would contain 73 parts per million of derris (4.1 per cent rotenone, 15.1 per cent chloroform extract).

On the basis of Cassil's findings it may be calculated that a man weighing 154 pounds (70 kg.) would have to eat about 110 pounds (50 kg.) of cabbage bearing a derris residue of 73 parts per million to get an acutely toxic dose. The Bureau of Entomology and Plant Quarantine recommends for the control of cabbage worms, the Mexican bean beetle, and certain other vegetable insect pests, a dust made from talc or clay and powdered derris and containing not more than 1 per cent of rotenone. For a man to get an acute toxic dose of this dust he would have to eat 360 grams of it. It is doubtful if one could swallow this quantity of material even with suicidal intent, because one of the first effects of derris is vomiting. Derris residues on foodstuffs are not a menace to health, for three reasons: (1) The amount present even immediately following application is small; (2) this residue, small as it is, is rapidly reduced by weathering, because derris adheres poorly as compared with lead arsenate; (3) rotenone and the other constituents in the derris are rapidly decomposed by exposure to sunlight and air and the decomposition products are nontoxic.

Use of Rotenone and Rotenoids as Insecticides

Since 1927 the writer has been compiling information on *Derris*, *Lonchocarpus*, *Tephrosia*, and other plants containing rotenone and the rotenoids. The data on the effectiveness of these insecticidal principles upon the various species of Insecta and Acarina have been classified according to the order, family, and genus to which these organisms belong. This information is to be published in the "E" series of mimeographed publications of the Bureau of Entomology and Plant Quarantine of the United States Department of Agriculture.

Table 2.—Number of identified families, genera, and species of Insecta and Acarina against which rotenone and the rotenoids have been tried, arranged according to order.

Order	*Families*	*Genera*	*Species*	*References*
Collembola	3	4	4	8
Orthoptera	5	13	13	49
Dermaptera	1	1	1	3
Odonata	1	1	0	2
Isoptera	0	0	0	3
Corrodentia	1	2	2	1
Mallophaga	4	8	11	33
Thysanoptera	1	12	25	100
Homoptera	10	55	92	341
Hemiptera	8	42	56	106
Anoplura	3	7	10	35
Coleoptera	29	125	189	439
Lepidoptera	42	165	214	553
Hymenoptera	6	29	37	131
Diptera	19	49	79	349
Siphonaptera	4	8	10	47
Acarina	12	27	40	179
Phalangida	1	1	1	1
Total	150	549	784	2,380

The extent to which rotenone and the rotenoids have been tested as insecticides is shown in table 2.

There seems to be no record in the literature of tests with derris against Thysanura, although pest-control operators have doubtless used preparations containing it for the control of silverfish.

Rotenone and the rotenoids are highly toxic to all species of Mallophaga, Anoplura, and Siphonaptera upon which they have been tested. Practically all Hymenoptera except a few ants are also susceptible. The other orders display a wide range in susceptibility from family to family and even among genera of the same family. In the one lepidopterous family Phalaenidae, why should the maize stalk borer, *Busseola fusca* (Fuller), be so susceptible and the southern armyworm, *Prodenia eridania* (Cram.), resistant to rotenone? These questions and many similar ones are for the insect toxicologist to answer.

More Effective Ways of Using Rotenone and the Rotenoids

At present derris and cube are used mostly in the form of dusts made by mixing the finely ground roots with talc, clay, pyrophyllite, or other inert diluent. Dusts are also made by impregnating walnut-shell flour, pyrethrum marc, or other material with extractives from these roots. Liquid extracts are made with a water-miscible liquid such as acetone if the solution is to be added to water, or with a water-immiscible liquid such as ethylene dichloride if the solution is to be added to kerosene.

Liquid extracts containing all the extractives from derris or the same extractives from which the rotenone has been removed are used in preparing kerosene-base fly sprays. (Use has recently been restricted solely to agricultural insecticides. Ed. Note.) On account of the low solubility of derris extractives, and especially of rotenone, in petroleum hydrocarbons, it is necessary to use a mutual or supplementary solvent. A large number of liquids have been proposed for this purpose. Information on this subject, which is largely in the patent literature, has been abstracted by Roark (1938a, 1940, 1941). Some suggestions as to possible ways in which these products can be improved will be discussed in the following paragraphs:

Dusts Made by Diluting Ground Roots

Numerous investigators have shown that the particle size of a dust profoundly influences its insecticidal efficacy. For example, Siegler & Goodhue (1939) showed that fine particles (4 microns diameter) of phenothiazine were much more toxic to the codling moth larva than were coarse (45 microns) particles. On the other hand, coarse (18 microns) lead arsenate was somewhat more effective than fine (less than 2 microns). They

tested the materials as stomach poisons.

Little work has been done on the influence of particle size of dusts on their effectiveness as contact insecticides, but there is a belief that the finer the dust the more effective it is. Fine particles adhere to the surface of a leaf or fruit better than do coarse particles. Commercial derris and cube powders are ground to meet the specification of 90 per cent through a 200-mesh sieve. It would be possible to produce finer powders by the micronizing process, but to produce a powder as fine as the usual commercial lead arsenate, 86 per cent of which is smaller than 6 microns and 69 per cent smaller than 2 microns, an impregnated dust would have to be used.

There are several disadvantages to the use of a dust made by mixing pulverized root and an inert diluent. *Derris* roots, and also cube, timbo, and *Tephrosia* roots, are tough and fibrous and difficult to grind, and heavy and expensive equipment is required to produce a fine powder. The powdered root is not made up of uniformly sized particles, and the rotenone content of the different-sized particles varies greatly. When blown out of a dusting machine, the fine particles are carried much farther than the coarse particles. It would be of interest to determine to what extent the rotenone-rich and the rotenone-poor particles of powdered derris root separate under field-dusting conditions, and to what extent they separate from the clay, talc, or other diluent employed.

There has been much discussion as to whether it is better to use a high-rotenone or a low-rotenone derris in making a dust. To make 100 pounds of a 1 per cent rotenone dust from derris powder containing 10 per cent of rotenone, 10 pounds of derris powder is required, as compared with 25 pounds from a powder containing 4 per cent of rotenone. Since the ratio of diluent to derris powder is 9:1 in the first product, and 3:1 in the second; it has been argued that a low-rotenone root is preferable because of the greater proportion of active particles in the mixture. Preliminary tests against the pea aphid made in the Bureau of Entomology and Plant Quarantine have failed to substantiate this theory. Furthermore, as pointed out above, all particles of a powdered derris root do not contain the same percentage of rotenone. (For other views on this subject see *Soap and Sanitary Chemicals*, March, 1942, p. 93, Ed. Note.)

Recently Wilson *et al.* (1941), of the University of Wisconsin, studied the electrostatic charge produced in the process of applying rotenone dusts. They found that dusts producing high charges generally give a greater mortality of pea aphids than dusts producing low charges. Pyrophyllite, flaky talcs, calcium carbonate, and gypsum produced high charges, whereas clay produced low charges. When soybean oil was added to dusts, the electrostatic charge could be increased or decreased according to the diluent used. These observations indicate the possibility of increasing effectiveness of rotenone dusts by choosing proper diluent and oil or other activating agent.

Impregnated and Coated Dusts

Much of the experimental work with impregnated and coated dusts has been done by manufacturers of proprietary products. In dusts made by mixing the diluent or carrier with a solution of the active principles in a volatile organic solvent, *e.g.*, chloroform, and removing the solvent by evaporation, every particle is covered with some insecticidal material. Moreover the particle size of a diluent such as talc can be more closely controlled than can that of a powdered root. Hence, an impregnated dust can be made uniform as regards particle size and content of rotenone and rotenoids on each particle, and such a product has many advantages over a heterogeneous mixture of inert and active particles of nonuniform size. Investigations of impregnated and coated dusts seem well worth while.

Solutions in Organic Solvents

Very few organic liquids can be used undiluted to spray growing plants or trees without causing injury. The petroleum hydrocarbons of the paraffin series can be so employed provided the dosage is not too great. Unfortunately, the solubility of rotenone and the rotenoids is high in those solvents, such as chloroform, benzene, and other coal-tar hydrocarbons, carbon disulfide, and the esters ethyl formate and ethyl acetate, which cannot safely be applied to living vegetation, and low (at ordinary temperatures) in methanol, ethanol, and petroleum hydrocarbons, solvents that are relatively innocuous to foliage. The solubility of rotenone has been pretty well explored, and there seems little likelihood of finding a good solvent that can safely be sprayed upon plants. We are forced to fall back upon kerosene and light lubricating oils relatively free from phytocidal constituents, adding a small quantity of a better solvent such as acetone and other ketones, safrol, high-boiling ethers, dibutyl phthalate, alkylphenols, etc. Information concerning these is to be found largely in patents. Roark (1938a, 1940, 1941) has published abstracts of this information.

The solubility of rotenone in a highly refined kerosene can be increased from about 0.05 per cent to about 0.20 per cent by weight by the use of a suitable supplementary or mutual solvent. Although this increase in solubility seems slight, the extraordinary toxicity of rotenone makes results of great practical importance. Many household fly sprays and cattle fly sprays have made use of rotenone and the other derris extractives, or these extractives from which the rotenone has been removed, held in solution in a paraffin oil by means of such solvents.

Colloidal Suspensions in Organic Liquids

When a solution of rotenone in chloroform is added to kerosene, the solubility of the rotenone in the mixture of solvents is greater than in kerosene alone but much less than in chloroform alone; hence most of the rotenone will be precipitated in

the form of a colloidal suspension. The phenomenon is the same as when an acetone solution of rotenone is added to water. Cressman (in correspondence), for example, has found that a suspension of cube resins in oil is just as effective against the California red scale as a complete solution of cube resins in oil.

There seem to be great possibilities in the use of nonaqueous suspensions of this kind, and a study of their applicability to the control of many insects should pay handsome dividends. The great advantage of a rotenone suspension in oil over a true solution of rotenone in oil is that the concentration of toxicant can thus be vastly increased.

Colloidal Suspension in Water

The original method of using derris as an insecticide was to beat the fresh root to a pulp in water and then spray the milky liquid thus formed upon the plants to be protected. Chinese market gardeners in the Malay Peninsula employed this procedure long before derris was known in Europe or America. The first proprietary insecticides made from derris were liquid extracts designed to be added to water, and this dilution with water precipitated the active principles in the form of a colloidal suspension. At present most derris sprays are made by suspending the powdered dried root in water rather than by adding a liquid derris extract to water.

The liquid extract offers advantages in the matter of homogeneity of the spray, greater concentration of active principles, and superior wetting and penetrating properties, but these advantages are offset by its higher cost. There seem to be possibilities, however, in the use of improved wetting, penetrating, and activating agents in conjunction with rotenone and the rotenoids, and the incorporation of all these ingredients in the same solution and in the proper proportions ready to be poured into the spray tank offers many advantages. Research to develop better adjuvants for use with derris and cube extractives should prove profitable.

Suspensions in Air (Smokes and Artificial Fogs)

Probably the oldest way of combating insect pests is the use of smoke produced by burning grass or brush. It was early found that when cedar wood or cedar leaves, tobacco, and other insecticidal plants were thus burned, the efficacy of the smoke was increased. One of the first methods of using pyrethrum powder was to sprinkle it on a hot stove. Cones made of pyrethrum powder, sawdust, and an oxidizing agent such as potassium nitrate and designed to be burned are on the market. Apparently derris has never been used in this way, although McIndoo & Sievers (1924) reported that when derris and cube were burned the smoke was effective against certain species of aphids.

Recently Goodhue & Sullivan (1941), of the Bureau of Entomology and Plant Quarantine, have investigated the insecticidal possibilities of the smoke made by burning derris and of the fog produced when a liquid derris extract is sprayed upon a heated surface such as an electric hot plate. For example, 0.2 gram of rotenone dissolved in safrol was sprayed upon a heated electric hot plate placed in an 1,100-cubic foot room. The white smoke produced killed 83 per cent of the houseflies in the room.

This method of applying rotenone and the rotenoids has enormous possibilities. By spraying a solution into the exhaust pipe of a tractor or truck, it may be possible to control the pea aphid and many other insects under field conditions. Nicotine dissolved in mineral oil is applied in this way, but the insecticide is in the form of a true vapor or gas whereas in the case of rotenone and other derris extractives which are nonvolatile the insecticide is in the form of solid particles suspended in air.

Use of Synergists with Rotenone

There is a growing tendency to use mixtures of insecticides. Sesame oil (Eagleson 1940) and isobutyl undecylenamide have been shown to increase the insecticidal value of the pyrethrins when mixed with them in solution in kerosene. Other compounds are also suspected to act as synergists, but the proof is not conclusive. With rotenone evidence of synergism is not so clear cut as with the pyrethrins. The possible role of a number of synthetics as synergists for rotenone seems well worth exploring. The so-called activating agents, such as peanut and soybean oils, and various proprietary wetting and penetrating agents may assist the action of rotenone in this manner.

Literature Cited

Cassil, C. C. 1941. Derris residue on marketable cabbage. Jour. Econ. Ent. 34: 72-4.

Eagleson, C. 1940. Oil synergist for insecticide. U. S. Patent 2,202,145, issued May 28, 1940.

Geoffroy, E. 1892. Sur le *Robinia nicou* et son principe actif. Jour. de Pharm. et de Chim. 26: 454-5.

Goodhue, L. D. 1936. An improvement on the Gross and Smith colorimetric method for the determination of rotenone and deguelin. Assoc. Off. Agr. Chem. Jour. 19: 118-20.

Goodhue, L. D., and W. N. Sullivan. 1941. Insecticidal smokes—their application in the control of household insects. Soap. 17(8): 98-100.

Great Britain Imperial Institute. 1938. The cultivation of *Lonchocarpus*. (Gt. Brit.) Imp. Inst. Bul. 36: 179-85.

Great Britain Imperial Institute. 1940. A survey of insecticidal materials of vegetable origin. London.

Haag, H. B. 1937. Toxicity of rotenone. A study of the toxicity to humans and animals of rotenone-bearing products. Soap 13(1): 112-c, 112-d, 137.

Haag, H. B., and Isabel Taliaferro. 1940. Toxicological studies on cube. Jour. Pharmacol. and Expt. Ther. 69: 13-20.

Haller, H. L., and F. B. LaForge. 1934. Rotenone XXX. The non-crystalline constituents of derris root. Amer. Chem. Soc. Jour. 56: 2415-9.

Jones, H. A. 1939. Alkaloids in cube root. Jour. Econ. Ent. 32: 596-7.

Jones, H. A. 1941. A review of methods for the chemical analyses of rotenone-bearing plants. U. S. Dept. Agr., Bur. Ent. and Plant Quar. (To be submitted for publication in E series.)

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Soap Buying Habits

A study of soap preferences in the Milwaukee market for 1941

SOAP buying habits in the Milwaukee market are checked annually by the *Milwaukee Journal*. Reflecting as they do the buying policies of a representative cross-section of the American public, they give some idea of the national urban market for soaps and allied products. The following figures, taken from the 1941 survey, give the percentage of families in the district using each product, the average consumption where the product is used, and the brands preferred by the largest percentage of Milwaukee residents.

Toilet Soap for Hands and Face

used by 99.6% of reporting families. Leading sellers:

"Lux" 26.2%
"Sweetheart" 19.6%
"Ivory" 15.3%

Toilet Soap for Bath

used by 99.6% of reporting families. Leading sellers:

"Lifebuoy" 29.8%
"Ivory" 19.4%
"Lux" 17.0%

Granulated Soap and Soap Beads

used by 78.3% of reporting families. Leading sellers:

"Rinso" 48.8%
"Oxydol" 44.1%
"Super Suds"..... 17.3%

Tooth Paste

used by 61.4% of reporting families average consumption—2 tubes per month. Leading sellers:

"Pepsodent" 23.9%
"Colgate's" 22.9%
"Ipana" 17.0%

Shaving Cream

used by 40.9% of reporting families average consumption—6.4 tubes or jars per year per man. Leading sellers:

"Palmolive" 39.8%
"Lifebuoy" 18.9%
"Williams" 11.5%

Tooth Powder

used by 50.6 of reporting families average consumption1.4 cans per month. Leading sellers:

"Dr. Lyon's" 54.1%
"Pepsodent" 12.2%
"Colgate's" 8.3%

Brushless Shaving Cream

used by 21.0% of reporting families average consumption—6.6 tubes or jars per year per man. Leading sellers:

"Burma Shave"... 20.5%
"Barbasol" 18.2%
"Molle" 17.0%

Toilet Bowl Cleaners

used by 63.0% of reporting families. Leading sellers:

"Bowlene" 48.4%
"Sani-Flush" 47.5%
"Vanish" 2.1%

Liquid Shampoos

used by 50.0% of reporting families average consumption—5.5 bottles per year. Leading sellers:

"Drene" 29.9%
"Fitch's" 20.2%
"Watkins" 13.9%

Package Soap Flakes

used by 81.5% of reporting families. Leading sellers:

"Lux" 34.5%
"Hanser's" 26.3%
"Ivory" 19.2%

Scouring Cleansers

used by 90.3% of reporting families. Leading sellers:

"Kitchen Klenzer". 32.6%
"Old Dutch"..... 24.8%
"Sunbrite" 8.6%

Soap Crystals, Water Softeners

used by 28.6% of reporting families. Leading sellers:

"Climalene" 65.6%
"No Name"..... 7.5%
"Melo" 5.6%

White Laundry Soap

used by 63.5% of reporting families. Leading sellers:

"P. & G."..... 70.0%
"Ivory" 19.1%
"Crystal White"... 18.2%

Brown Laundry Soap

used by 56.4% of reporting families. Leading sellers:

"Fels Naptha".... 81.5%
"O. K."..... 11.3%
"American Family" 6.8%

Liquid Dentifrices

used by 22.0% of reporting families average consumption—1.5 bottles per month. Leading sellers:

"Teel" 79.6%
"Cue" 10.2%
"Pepsodent" 6.2%

What Makes A Good Floor Wax?

By RICHARDS JARDEN

Franklin Research Co.

AMONG manufacturers and users as well there is a great difference of opinion as to what constitutes a good floor wax. One manufacturer lays great stress on the fact that his particular brand is "High in Water Resistance," while still another apparently considers that point of such minor interest that he overlooks it entirely, and "bears down" on the statement that his brand is "Non-Slippery." Still another is satisfied to present his product on such an elementary point as that it is "Easy to Apply," or that "It dries to a Gloss Without Polishing."

Now this, frankly, does not make sense, for with the possible exception of those few people who have had no experience with the product, we have all reached a point of understanding that tells us quite definitely that a floor wax that is really worth consideration must be well balanced in at least eight different points of quality. These points are listed below. If the product is out of balance in any one of these eight essentials it simply cannot be satisfactory.

The eight points of quality:

1. Safety as represented by chemical composition
2. Safety as represented by non-skid quality
3. Water resistance
4. Wearing quality
5. Resistance to dirt
6. Ease of application. (Lack of surface tension)
7. Lustre
8. Price

One cannot accentuate one of these points without an effect upon another. If the manufacturer over accentuates the point of "Safety from a Non-Skid" standpoint (Point No. 2), he must make his product on the "tacky" side. By necessity he sacrifices at points No. 4 (Wearing Quality) and No. 5 (Resistance to Dirt). The balance of the product is thrown completely off.

If such a point as No. 8 "Price" is accentuated, not one or two, but possibly all of the other points can be thrown out of balance. As a rule, however, the accentuation of the price factor is more apt to affect points No. 1, No. 2, No. 4, and No. 5, namely—

Safety as represented by Chemical composition

Here we would find cheap and caustic emulsifying agents being used so that the product might be harmful to the floor covering.

Safety as represented by non-skid quality

Here we would find low-priced gums substituted for carnauba wax and resulting in a hard "shellac like" texture that is slippery.

Wearing quality

Again substitution of low priced gums will develop a hard brittle film, or the substitution of soft and low priced waxes will develop a soft film. A film having a good wearing quality must neither be too hard nor too soft.

Resistance to Dirt

Those softer substitute waxes as mentioned above will "catch" rather than "repel" dirt.

A wax lacking any one of these important features can not be economical. Yet we find many users still making their choice of brands on the single point of "Lustre," and many manufacturers apparently under the impression that if the product is "Easy to apply" (point No. 6) and of "Good Lustre" (point No. 7) that it should be acceptable. I have interviewed many users of water emulsion wax who have been thoroughly disgusted with the product, merely because they have had experience only with brands that have been so badly out of balance that no one could hope to secure satisfactory results with them.

This confusion can be charged 100 per cent to wax manufacturers, rather than to consumers, for the industry has in so many cases offered poorly made products through poorly informed sales organizations. Thus we have failed to do our full duty in the correct education of the consuming public. It is not reasonable to assume that a consumer in the person of a Purchasing Agent or a Building Superintendent, who must deal with literally hundreds of maintenance materials and problems, should be an expert on all such matters. In many cases these men secure their knowledge of such products through their contacts with such sales organizations as we manufacturers support, and through such advertising copy as we write. If the sales organizations or the advertising copy are fundamentally wrong to begin with, then the responsibility can rest nowhere except upon the source.

While this industry was in its infancy, there was little one could do about this confusion, for the consumers had no dependable source of correct information. The rapid and wide public acceptance of water emulsion waxes invited a great number of miscellaneous manufacturers and merchants into the field. Many offered waxes as a side line, merely because their regular business was "on the rocks." Remember this product first came into prominence during the worst days of the depression.

The result was that many poorly made brands were offered.

Many brands were "over sold" on quality. Whether this overselling was a tendency on the part of the merchants or manufacturers to "take advantage," or merely the result of their own lack of understanding of the product is beside the question. It remains a fact that many brands have been offered on the basis that they are "cure alls" and this misinformation has done the industry a lot of harm. The fact that poorly made brands have been oversold has certainly made many users skeptical of water emulsion waxes as a group.

There is every reason to understand how during those confused days of 1931-36 a great deal of misunderstanding could have gotten into the hands of buyers and users, and to understand how certain buyers and users could have innocently selected a brand that would give them an entirely wrong impression of the product. Anything short of glue that would dry to a gloss was looked upon as a "Self Polishing Floor Wax." Very few manufacturers and none of the merchants were able to see past points Nos. 1-6 and No. 7 namely, "Would the material harm the floor?" "Was it Easy to Apply?" (No. 6) and "Would it dry to a Gloss?" (No. 7.) Such points as "Water Resistance" (No. 3), "Wearing Quality" (No. 4), "Dirt Resistance (No. 5), "Non-Skid Quality (No. 2) have developed one by one over the past few years as a result of the evolution of the product.

It is true that some brands have failed to evolve. There are still some of these brands on the market, only because some buyers have failed to keep abreast of developments, and for that reason fail to realize that they could secure a very much better product than they have been accustomed to. Keep in mind that even a poorly made "Water Emulsion Wax" is in many cases better than a well made oil base wax of the "old" days. It is a question of comparison, for on the testimony of one of the largest users, "We are making such a great saving over our former cost of maintenance with an oil base wax, that we simply cannot convince ourselves that anything could be better."

If you are going to compare your established brand of water emulsion wax with some past experience with an oil base product, or if you are going to compare your established brand with some formula of the 1931 to 1939 vintage, then possibly it may be satisfactory for you to allow point No. 8 "Price" to work out of balance, and buy at the lowest cost per gallon. If, however, you want the lowest cost product from a standpoint of total floor maintenance expenditure, which naturally includes costs of labor, then you will find a sensible procedure which can be followed to arrive at your selection.

You have, for example, such things as the following to guide you—

A. "The Hidden Ingredient" as one advertiser puts it, namely the integrity of the manufacturer.
B. The assistance of your casualty insurance company, most of whom have studied the product.
C. The recommendation of the manufacturer of your particular floor covering.
D. Reports of independent and disinterested laboratories.
E. The experience of your neighbors or of other consumers on a country wide basis.
F. Tests and experiments that you can conduct on your own floors or even at your own desk.

In making such demonstrations or tests be sure to use two or more products. In other words, make an actual comparison and be sure to cover all of the eight points of quality. Each point is important within itself but the product cannot be economically sound unless it is "well balanced" in all points.

SLIP TESTING OF FLOOR WAXES

Many firms writing casualty insurance have in recent years developed slip tests for floor waxes in the course of their investigation of accident hazards on waxed floors. Methods for testing slip resistance have been developed by such firms as Liberty Mutual Liability Insurance Co., Travelers Insurance Co., Aetna Casualty & Surety Co. and others, and numerous commercial floor waxes rated for the approved lists maintained by many of these companies.

A slip testing device developed by one company, and similar in many respects to one used by the U. S. Bureau of Standards, is described in a recent bulletin. The machine operates on an oblique thrust principle, corresponding to the thrust on the shoe in walking. It consists of a right-angled frame, with a slotted weight (about nine pounds) sliding between and held in place by the uprights of the frame. A 10-inch thrust arm is pivoted at one end near the center of gravity of the weight, and at the other end through the center of area of a test "shoe" (a maple block 3″ x 3″).

When the weight is raised, it is supported by the friction between the maple block and the surface to be tested. By means of a screw and lug the shoe may be drawn forward, increasing the horizontal component of the force until the shoe slips on the surface, letting the weight drop. The position at which the slip occurs, determines the coefficient of friction (tangent of angle of slip) marked on a graduated scale.

The figures reported are the coefficients of friction between the flooring tested and the maple block. The higher the figure, the safer the floor is from a non-slip standpoint. To test different finishes, sections of flooring about two feet square are treated, the surfaces being tested after drying for an hour or more—and then again—after 24 hours. It should be emphasized that different types of measuring devices seldom give comparable values for the coefficient of friction on a given surface, because of such factors as internal friction and inertia.

Insecticide Regulations

A SET of new regulations for the enforcement of the Insecticide Act of 1910, issued by the Agricultural Marketing Service, U. S. Department of Agriculture, went into effect October 1, 1941. They replaced regulations which had been in effect since August 28th, 1928. The complete text of the new regulations follows:

DEFINITIONS

§ 161.1 *Meaning of words.* Words in the regulations in this part in the singular form shall be deemed to import the plural, and vice versa, as the case may demand.*

§ 161.2 *Terms defined.* For the purpose of the regulations in this part, unless the context otherwise requires, the following terms shall be construed, respectively, to mean:

(a) "Act" means the Insecticide Act of 1910 (36 Stat. 331; 7 U.S.C. 121-134).

(b) "Person" means an individual, corporation, partnership, or two or more persons having a joint or common interest.

(c) "Chief of Service" means the Chief or Acting Chief of Agricultural Marketing Service, United States Department of Agriculture.

(d) "Package" includes the carton, box, barrel, or other receptacle into which an insecticide or fungicide, paris green, or lead arsenate is placed for use, handling, removal, shipment, or conveyance; a single container of such article or articles or several containers packed together, including both the immediate container of the material and the box, carton, or other container (if any) in which it is enclosed or displayed.

(e) "Unbroken package and original unbroken package" means the original package delivered by the shipper to the carrier at the initial point of interstate shipment, and also the unit package as ordinarily displayed on the shelves of the retail dealer or distributor.

(f) "Label" includes any legend and descriptive matter or design printed, stenciled, stamped, seared, or impressed upon the article or its container or wrapper, and also includes any circular, pamphlet, or other descriptive matter packed with or accompanying the article at any time while such article is in interstate commerce, and such letters, circulars, pamphlets, and other descriptive matter to which reference is made, either on the label attached to the package or on the package itself, or any circular, pamphlet, or other descriptive matter accompanying the package in interstate commerce.

(g) "Insect" means any of the numerous small invertebrate animals generally having the body more or less obviously segmented, for the most part belonging to the class Insecta, comprising six-legged, usually winged forms, as, for example, beetles, bugs, bees, flies, and to other allied classes or arthropods whose members are wingless and usually have more than six legs, as, for example, spiders, mites, ticks, centipedes, and wood lice.

(h) "Fungi" means all nonchlorophyll-bearing plants of a lower order than mosses and liverworts (i.e., nonchlorophyll-bearing thallophytes), as, for example, rusts, smuts, mildews, molds, yeasts, and bacteria.

(i) "Official inspector" means any employee of the Agricultural Marketing Service or other authorized inspector or agent of the Department of Agriculture or of the Treasury Department.*

ADMINISTRATION

§ 161.3 *Authority.* The Chief of Service is charged with the administration of the provisions of the Act and the regulations in this part and is authorized to issue such instructions as he may deem proper and necessary.*

SAMPLES

§ 161.4 *Collection of samples.* Samples shall be collected only by official inspectors.*

§ 161.5 *Investigations.* Official inspectors shall make investigations to locate shipments of products which may be in violation of the law; visit manufacturers and distributors and, with their consent, obtain information concerning insecticides and fungicides marketed by such parties, and records of interstate shipments; consult shipping records, such as those kept by railroad, express, and trucking companies, and visit wholesale and retail establishments and other places to locate interstate shipments of insecticides and fungicides.*

§ 161.6 *Methods of examining samples.* The methods of examining samples shall be those adopted and published by the Association of Official Agricultural Chemists (where applicable), and such other methods as may be necessary to determine whether or not the product and its labeling are in compliance with the law. These methods may include chemical, microscopical, physical, and bacteriological methods, and tests in orchard, field, garden and greenhouse, on animals, in or about premises, in cages, in the laboratory, and in such other places as may be necessary.*

§ 161.7 *Hearings.* If, from the examination or analysis, a sample appears to be adulterated or misbranded within the meaning of the Act, notice in writing, setting forth the charges, shall be sent to the person who made, or offered to make, the shipment, and to any other interested person, giving him an opportunity to offer such explanation as he may desire, for consideration by the Department. Should any such person file, in addition to his reply in writing, a written request for an oral hearing, giving his reasons therefor, due consideration will be given to the question whether any useful purpose would be served by such a hearing.

No hearing will be granted prior to seizure action pursuant to section 10 of the Act.*

VIOLATIONS

§ 161.8 *Report of violations.* Requests for institution of prosecutions under sections 1 and 2 of the Act, and, where practicable, for proceedings under section 10 of the Act, will be made by the Secretary of Agriculture to the Attorney General. Where immediate action is necessary to secure the seizure of articles under section 10 and delay would result by reporting the facts to the Attorney General, the Secretary of Agriculture will communicate directly with the United States attorneys. In such cases, however, the Secretary of Agriculture will promptly furnish the Attorney General with a copy of the communication to the United States Attorney.*

*§§ 161.1 to 161.20, inclusive, issued under the authority contained in sec. 3, 36 Stat. 331; 7 U.S.C. 127.

§ 161.9 *Publication.* Publication shall be made of notices of judgment of the courts in cases arising under both the criminal sections (section 1 and 2) and the seizure section (section 10) of the Act in the form of circulars, notices, or bulletins as the Chief of Service may direct.*

ABSTRACTION OF VALUABLE CONSTITUENTS

§ 161.10 *When wholly abstracted.* A valuable constituent will be considered as wholly abstracted from an article whenever the designation of the article imports its presence therein and the constituent has been wholly omitted therefrom, in the preparation of the article, or has been wholly removed from the completed article.*

§ 161.11 *When partly abstracted.* A valuable constituent will be considered as partly abstracted from an article whenever the designation of the article imports its presence therein and the constituent is not present in the usual or customary amount or in the amount indicated on the label.*

LABELING

§ 161.12 *Statements on label.* Statements on labels must conform to the following requirements:

(a) *To be in English language.* All words, statements, and other information required by the Act to appear on the label shall be in the English language.

(b) *Ingredient statement.* The ingredient statement, where required on the labels of insecticides and fungicides, shall: (1) be placed on that part of the label of each individual package or container (and also on the carton or outer container, if there is one) which is presented or displayed under customary conditions of purchase; (2) run parallel with other printed or reading matter on the label; (3) not be materially less conspicuous than any other word, statement, or information on the label; (4) be on a clear, contrasting background and not obscured by designs or vignettes, or crowded with other written, printed, or graphic matter; (5) give the specific names by which the ingredient is commonly known, other than a trade name or collective name, or, if it does not have such a name, its correct chemical name; (6) give equal prominence to the names of the ingredients where more than one is present; (7) give single values for the percentages of the ingredients and shall not use a sliding scale form of statement; and (8) show the term "Inert Ingredient" in type and position equally as conspicuous as the term "Active Ingredient" when both these terms are used.

(c) *Phenol coefficient statement.* If a label of a disinfectant bears a phenol coefficient statement it shall not be in a sliding scale form.

(d) *False and misleading statements.* The use of any false or misleading statement on any part of the label or labeling, given as the statement or opinion of an expert or other person or based on such statement or opinion, shall not be justified, nor may such statement be justified by any descriptive matter explaining the use of the false or misleading statement.

Any statement on the label or labeling, either directly or indirectly implying that the product is recommended or endorsed by any agency of the Federal Government, is considered misleading.*

§ 161.13 *When labels are required.* Whenever, by the terms of the Act, information is required to be on the label of an insecticide or fungicide, a label must be placed on the article or its container in order that the statement can be made. The omission of a label will not excuse the absence of the required statement.*

§ 161.14 *Name and address of manufacturer*—(a) *True name and place.* The name of the manufacturer or producer or the place of manufacture need not be given upon the label, but, if given, it must be the true name and true place. The words "Packed for * * *," "Distributed by * * *," or some equivalent phrase, shall be added to the label in case the name which appears upon the label is not that of the actual manufacturer or producer.

(b) *When more than one place of manufacture.* When a person actually manufactures or produces an insecticide, fungicide, paris green, or lead arsenate in two or more places, the actual place of manufacture or production of each particular package need not be stated on the label except when, under the peculiar circumstances of the particular case, the mention of any such place to the exclusion of the others may mislead the public.

(c) *Geographical name.* The use of a geographical name on the label of an insecticide or fungicide will not be considered misbranding when, by reason of long usage, it has come to represent a generic term and indicates a style, type, or brand, or a specific substance rather than the place of manufacture, but in all such cases the place where any such article is manufactured or produced shall be stated on the principal label.*

GUARANTY

§ 161.15 *Guaranty against adulteration and misbranding.* The following provisions apply to the furnishing and use of the guaranty:

(a) *To dealer.* Any wholesaler, manufacturer, jobber, or other person residing in the United States may furnish to any person to whom he sells any insecticide, paris green lead arsenate, or fungicide, a guaranty that such article is not adulterated or misbranded within the meaning of the Act.

(b) *Essential wording.* Each guaranty to afford protection shall be signed by, and shall contain the name and address of, the wholesaler, manufacturer, jobber, or other person residing in the United States who sold the article, and it shall be stated in the guaranty that such article or articles are not adulterated or misbranded within the meaning of the Act. The guaranty shall not appear on the labels or packages.

(c) *Holder not to be prosecuted.* No dealer in insecticides, paris greens, lead arsenates, or fungicides will be liable to prosecution if he can establish that the articles were sold under a guaranty given in compliance with the regulations in this part.*

IMPORTS

§ 161.16 *Declaration.* All invoices of insecticides, paris greens, lead arsenates, and fungicides imported into the United States shall be accompanied by a declaration of the shipper, made before a United States consular officer, as follows:

I, ..., the undersigned,
(Name in full)
do hereby declare that I am the .....
(Manufacturer
..... of the merchandise herein men-
or shipper)
tioned, which consists of insecticides, paris greens, lead arsenates, or fungicides. None of this merchandise is falsely labeled in any respect, or dangerous to the health of the people of the United States, or forbidden entry into, or sale in, or restricted in sale in, the country in which it is made or from which it is exported. The merchandise was manufactured in ..... by
(Country)
....., and is exported from
(Name of manufacturer)
..... consigned to .....
(City) (City)
Dated at..... this
day of....., 19.....
.....
(Signature)

§ 161.17 *Notice of shipments for importation.* The collector of customs shall notify the Agricultural Marketing Service of the United States Department of Agriculture of all shipments of insecticides and fungicides being imported into the United States and shall detain all such shipments until notified by the Agricultural Marketing Service that the shipment may be released.*

§ 161.18 *Drawing of samples of import shipments.* The collector of customs shall, on request of the Agricultural Marketing Service of the United States Department of Agriculture, draw samples of import shipments of insecticides and fungicides and deliver them together with a copy of the labeling and all accompanying circulars and advertising matter pertaining to the goods to the designated laboratory of the Agricultural Marketing Service.*

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Insecticide Act Enforcement

By C. C. McDONNELL*
U. S. Department of Agriculture

THE Insecticide Act of 1910 provides that the Secretaries of Agriculture, Treasury, Commerce and Labor, (the latter now Department of Commerce), "shall make uniform rules and regulations for carrying out the provisions of this act." In conformity with this provision of the law, regulations for its enforcement were adopted Dec. 9, 1910. Several changes have been made in the regulations as first published, but the new regulations issued Oct. 1, 1941, represent the first time they have been revised in their entirety. With years of experience in the enforcement of any regulatory law and the accumulation of court decisions and interpretations of the law, it is natural to expect that the point of view of enforcement will change to some extent. However, insofar as this law is concerned there has been no fundamental change in its enforcement that would cause a deviation from the purpose for which it was enacted.

We cannot, of course, take anything away from the law nor add anything to it. The regulations are designed primarily to acquaint the industry with the methods to be followed in its enforcement and point out the Department's interpretation of the law's provisions, which is based on the wording of the law itself and the statements made by members of the Congress indicating what it was designed to accomplish when the bill was before it.

In writing the regulations we have attempted to cover the subject fully, but concisely, and to word them so that they will be clear and readily understood. It is impossible, however, to foresee all problems that may arise and I am glad to have the opportunity to explain more fully some of the points brought up in the following questions.

With reference to the "DEFINITIONS" four questions have been submitted.

Reg. 161.2 (*d*)

Q. "The definition of 'package' includes not only the individual container but apparently the shipping carton as well. Does this mean that the information required to be shown on the labels of individual cans must also be shown on the cartons or shipping containers holding a dozen or more cans and, if so, does this means that the entire label would have to be shown on the shipping cartons, or only the specific information required by your recent Rules, Regulations and Orders?"

Q. "Is it necessary to place the declaration of ingredients on the package carton of a disinfectant if each individual bottle within the carton is correctly labeled and the dealer or consumer removes each bottle from the carton for resale or use?"

Answer—Reg. 161.12 (b) provides that the ingredient statement, where required, shall be placed on the label of each individual package or container, and also on the carton or outer container if there is one, which is displayed under customary conditions of purchase. This includes not only packages of products that go to the consumer direct or through dealers, but also packages, as defined under Reg. 161.2 (d), that are shipped to other manufacturers or processors. In other words, in the case of products enclosed in a carton or package, either singly or more than one to a carton or package, which may be displayed or sold either singly or in the original carton or package, all matter required by the law to be placed on the label should appear on the carton or outer container of whatever form, as well as on each individual container within the carton or package. It is not necessary that the case or carton in which the product is shipped, that serves merely as a shipping container and from which the product is removed before it is offered for sale, shall bear any label or statement of ingredients.

Reg. 161.2 (*f*)

Q. "We understand that advertising matter, such as booklets, literature, etc., that would be shipped interstate to a customer, would be considered part of the label although it is not actually shipped with the merchandise nor distributed in the store in the immediate proximity of the product."

A. As desirable as such a provision would be, the law does not authorize us to go that far. In the administration of the law such booklets and literature are not considered as a part of the label unless they actually accompany the shipment of the article in interstate commerce, or are referred to on the label of the article, or in other literature accompanying the shipment.

Reg. 161.2(*g*) (*h*)

Q. Does the Insecticide Division exercise jurisdiction over products sold for the control of: (1) Root-knot Nematodes; (2) Snails; (3) Slugs; (4) Sow Bugs; (5) Human Lice; (6) Roundworms or Tapeworms of Poultry and Livestock; (7)

* Before Natl. Assn. Insecticide & Disinfectant Mfrs., New York, December 2, 1941.

Botflies of Horses; (8) Screwworms of Sheep; (9) Wood-destroying Fungi; (10) Athlete's Foot Organisms; (11) Sheep-Fouling Organisms; (12) Rat Poisons; (13) Animal Repellents?

A. (1), (2), (6), (12), (13): No. if sold exclusively for these purposes.

(3): The law applies to products sold for the control of the larvae of certain insects sometimes referred to as slugs,—for example, the pear slug, the rose slug, and others,—but does not include products for use against the shell-less snails which are frequently seen about gardens and damp places.

(11): Not to the usual type of such organisms known as barnacles.

The next question relates to "HEARINGS."

Reg. 161.7.

Q. "We should like to know just how the Commissioner would arrive at an opinion as to whether to grant a firm a hearing. It says that a hearing will be granted only when it is believed a useful purpose would be served. We feel that this is not too specific. It further states that no hearing will be granted prior to seizure action pursuant to Section 10 of the Act. Will they actually seize the merchandise, or stop the sale of the merchandise before a hearing has been held?"

A. (By the reference to the "Commissioner" the questioner apparently is of the impression that this law is still being administered by the Food and Drug Administration.)

This question involves two different procedures, criminal action and seizure action. Seizure action, as authorized by Section 10 of the law, is designed to protect the consumer from the purchase of insecticides or fungicides that are grossly misbranded or adulterated; products that may cause injury to the plants on which they are to be used; or products that are ineffective for the purpose for which they are recommended, whether this be due to faulty manufacture or deterioration after manufacture, or whatever the cause might be. Action here must be prompt and the only way it can be accomplished is through proceeding against the goods by seizure, thus preventing their further distribution. This is an action against the goods by libel and is not a criminal action against the shipper. There is no provision in the law calling for a hearing before such action. In fact its purpose would be defeated by such procedure, due to the delay involved in granting a hearing.

With reference to criminal action the law provides that if examination shows a product to be misbranded or adulterated, the Secretary of Agriculture "shall cause notice thereof to be given to the party from whom the sample was obtained." The United States Supreme Court has ruled, in a case arising under the Food and Drugs Act of 1906, (which contains the same wording with reference to hearings), that this does not mean that a hearing shall be given to all persons charged with a violation of the Act,—(United States v. Morgan, U. S. 222, 274). However, Reg. 161.7 provides that a notice in writing shall be sent to the party making the shipment, or other interested person, and that an oral hearing may be given on specific request for such a hearing.

Some manufacturers, especially small one-man concerns that have had no previous contacts with the Government in connection with this Act, get panicky when they receive a citation from the Government and immediately think they have to call on their congressman or rush to Washington. Frequently in such cases the violation is of such a character that there is no disposition on the part of the Government to take the case to court if a willingness to correct the faults is shown, and further correspondence may show that to come to Washington would be an unnecessary waste of time and money. In some cases the manufacturer may not clearly understand the charges and after they are explained to him more fully by letter he realizes that he can make reply by letter equally as well as by a personal interview. Then there are cases in which the violation is of such a character that a reference to the court is clearly indicated regardless of what the reply might be. In such instances we write him frankly to this effect and let him know that it would be wasting his time and money to appear for a personal hearing. We don't wish to imply that a request for an oral hearing is never granted. Cases are frequent where manufacturers are given oral hearings, and we do not discourage such a hearing where it appears that it might be worthwhile.

Reg. 161.12 (*a*) (*b*)

Q. "This requires that all words, statements and other information required by the Act to appear on the label shall be in the English language. In one instance we use the English language, then we give the identical statements in Italian because many of the users of this product can not read English and are Italians. A circular has a certain portion appearing in English, then in Spanish, then in what appears to be Polish, in Yiddish, in German and in Portuguese. Since booklets are going to be considered a part of the label, we think that this point might be questioned wherever this foreign printing appears because of the wide use of this circular."

A. The law requires very little on the label,—merely a statement of the total amount of arsenic present and the amount in water soluble forms (expressed as metallic arsenic) in the case of products containing arsenic, and in the case of products that "consist partially or completely of an inert substance or substances which do not prevent, destroy, repel or mitigate insects or fungi," a plain and correct statement of the name and percentage amounts of each and every such inert ingredient contained in the product, or a plain and correct statement giving the name and percentage amounts of each and every ingredient having insecticidal or fungicidal properties and the total percentage of inert ingredients present.

It is reasonable to suppose that Congress had in mind, when inserting this provision, that this statement should be in language readily understandable by the mass of the American people, which is the English language. The provision that the ingredients shall be "plainly and correctly" stated is significant. The word "correctly, of course, means just that. The word "plainly" may, to a certain extent, be a matter of opinion. Here again, however, we are justified in assuming it was the intention that the statement be so placed that it will be readily noted by the buyer when he makes his purchase, and not in inconspicuous type or position where he would have to hunt for it, or in a form that is not clear and might be misleading.

There is no provision in the law requiring that directions for use of the product shall be given on its label, although it would be desirable had it contained such a provision. It was no doubt felt by the framers of the law that directions would be given as a matter of course, in order to acquaint the buyer with what the product was for, and how to use it, if for no other reason than to enhance its sale.

With reference to the use of language other than English, any statement, in addition to those required regarding the ingredients, may be used on the label in any language the manufacturer chooses to use provided it is true and not made in a way that the meaning is ambiguous and may be misleading. Careful attention should be paid to that word, "misleading." As has been stated by the courts, "Deception may result from the use of statements not technically false or which may be literally true * * * It is not difficult to choose statements, designs, and devices which will not deceive."

Another question on 161.12 (*b*)

Q. "Although there is no Federal requirement that the ingredient in our insecticide be shown on the label, we have for several years shown this information on our packages. However as our direction label is quite crowded we include the ingredient information on the side of our can and run the lines vertically instead of horizontally. The new ruling says that the ingredient statement, when required, must not be materially less conspicuous than any other word or statement on the label. Would we be apt to be in violation of the new regulations because our ingredients contents are shown as indicated above?"

A. While this is a new regulation it is the procedure we have been following for years. It is being issued in the form of a regulation so that manufacturers may be fully informed of the requirements. Answering the specific question raised, any statement regarding the ingredients contained in a preparation which, under the terms of the law, does not require an ingredient statement, is gratuitous information and as long as it is a true statement, and not misleading, there are no restrictions as to where or how it may be placed.

Reg. 161.14

Q. "We are not exactly sure whether our signature conforms to the letter of this requirement. We show the following signature on all of our specialty packages: (name fictitious)

Oil Specialties Division
Star Oil Corp.—Star Refining Co.
Star Building, Empire City, Mo.

Empire City is the home office of both the Star Oil Corp. and the Star Refining Co. although most of our specialty products are manufactured and packed at Electra, Texas, while some are manufactured and packed at plants in other States."

A. As stated in the regulation, it is not required that the name and address of the manufacturer be given on the label, but if given it must be correct. In case a manufacturer has more than one branch, it is sufficient to give the address of the home office of the firm.

Reg. 161.12 (*d*)

Q. "Any implication that the product is recommended or endorsed by any agency of the Federal Government is considered misleading. We have, at times, because we thought it would be good information, quoted from a state Experiment Station bulletin showing this matter in quotation, with the reference. This was in no way construed to make it appear that it was endorsed by any agency."

A. There is no objection to quoting from a Government bulletin provided a sufficient amount of the text is given so that the quotation is not misleading. It would evidently be improper to make any statement, either directly or by implication, that the Federal Government or an agency thereof endorsed any proprietary preparation.

Reg. 161.15

Q. I buy my insecticide in bulk from a manufacturer, from whom I hold a guarantee, and repack, putting on my labels. Am I protected under this guarantee?"

A. You are responsible under the law for a product packed and sold by you under your own label, which then becomes your own product, and the responsibility cannot be placed on the supplier of the material.

(Same Regulation.)

Q. "I manufacture an insecticide for various dealers, pack it, apply labels furnished by the dealer, and ship it out on their orders. Am I responsible under the law for all of the claims on the labels furnished me by the dealers?"

A. The answer is "Yes."

Reg. 161.15

Q. "The recently published regulations affecting the enforcement of the Federal Insecticide Act of 1910, provide that 'the manufacturer may guarantee to subsequent purchasers that the products concerned are not adulterated or misbranded within the meaning of the Act.'

"The Act provides that insecticides or fungicides will be considered to be misbranded if "it is intended for use on vegetation and shall contain any substance or substances which although preventing, destroying, repelling or mitigating insects

or fungi, shall be injurious to such vegetation when used.'

"It is understood by manufacturers, distributors and consumers alike that even insecticides which are properly formulated and manufactured are capable, if used improperly or if used under unusual conditions which are not necessarily recognizable, of causing injury to the plant or vegetation. It is questionable whether it is even possible to manufacture an insecticide or fungicide which will not, under certain conditions, cause injury to vegetation. It is likewise well known that pure water sprayed on plants under certain conditions will cause injury to those plants.

"We understand that it is not the intention of the Food and Drug Administration to prosecute manufacturers in cases where the spray material concerned has been properly formulated and manufactured, even though injury may be caused under conditions such as those indicated above. However, it appears to us that, if the above-quoted language is interpreted literally, strict compliance with the law is impossible, in view of the circumstances just outlined, and that a manufacturer, in guaranteeing to a purchaser that an insecticide or fungicide is not misbranded or adulterated within the meaning of the Act, would be certifying that he is accomplishing the impossible.

"We feel, therefore, that the wording of the law does not express the intent of the legislators and is obviously unfair to manufacturers and dealers in insecticides and fungicides and, further, that the regulations mentioned serve only to aggravate an already intolerable situation. We feel that, in fairness to manufacturers and dealers in insecticides and fungicides, the proper authorities should clarify this matter."

A. The statement quoted in the question comes under the adulteration section of the Act and not the misbranding section. However, the same answer would apply in either case.

In enforcing this provision of the law it is assumed that you can not go beyond the claims made on the label, or, if no directions are given on the label, (which is frequently the case in such standardized products as lead and calcium arsenates), go beyond the uses as recommended by authorities and understood by growers generally. If the user of a product applies it in any way other than the manufacturer directs or than that recognized as standard practice, the manufacturer can not be held responsible.

The last and only question relating to the regulations with reference to "IMPORTS":

Regs. 161.17, 161.18

Q. "May these regulations be construed to mean that an importer of, say, pyrethrum flowers and derris preparations, would be required to notify the Agricultural Marketing Service of such a purchase, or is that entirely up to the collector to notify that department?"

A. There is no obligation on the part of the importer or his agent to notify the Agricultural Marketing Service of import shipments he is about to receive. This duty rests on the customs service. It has been the practice of some manufacturers to notify our laboratory at the port of entry where a laboratory is located of incoming shipments with the idea that this would expedite the release of the goods. Under our present method of procedure, however, nothing is gained by so doing.

The purpose of the Insecticide Act is to keep misbranded or adulterated insecticides and fungicides out of the channels of interstate commerce, to promote honest labeling and fair dealing, and thus enable the purchaser to obtain what he calls for. Legitimate industry, as well as the consuming public, has a right to expect protection and enforcement officials owe a duty to both groups. This is the basis on which those officials, to whom the administration of this act is delegated, endeavor to function.

Insecticide Regulations

(*From Page* 155)

§ 161.19 *Bond for release of imports pending examination.* Consignments of insecticides, paris greens, lead arsenates, or fungicides, offered for importation into the United States may be detained pending examination to determine whether they are adulterated or misbranded, or they may be released to the consignee prior to such examination upon the execution on the appropriate form of a customs single-entry or term bond in such amount as is prescribed for such bonds in the customs regulations in force on the date of entry and containing a condition for the redelivery of the merchandise or any part thereof upon demand of the collector of customs at any time. The bond shall be filed with the collector of customs, who, in case of default, shall take appropriate action to effect the collection of liquidated damages as provided for in the bond.*

§ 161.20 *Procedure after examination.* (a) If, upon examination or analysis of a sample from an import consignment of insecticides, paris greens, lead arsenates, or fungicides, (1) it is found not to be adulterated or misbranded, the Agricultural Marketing Service shall notify the collector of customs that the shipment may be released; (2) but if the consignment is found to be adulterated or misbranded the owner or consignee shall be promptly notified by the Agricultural Marketing Service of the nature of the charge in order that he may be given an opportunity to show cause why the shipment should not be destroyed or refused entry.

(b) A reasonable time will be allowed the owner or consignee to submit evidence for consideration in connection with charges of adulteration or misbranding.

(c) If, after consideration of all of the evidence in the case, it still appears that the consignment may not be lawfully admitted to the United States, the Agricultural Marketing Service shall notify the collector of customs that the product is adulterated or misbranded under the Act and the Secretary of the Treasury (1) shall refuse delivery to the consignee and, under such regulations as the Secretary of the Treasury may prescribe, shall cause the destruction of any goods not exported by the consignee within three months from the date of notice of such refusal of entry, or (2) if the shipment has been released to the consignee on bond, action will be taken to enforce the terms of the bond.

Done at Washington, D. C., this 23d day of September 1941.

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LIQUID TOILET SOAPS
Falcon 18% Mechanics Grade
Falcon Coconut Oil Shampoo
Falcon 40% Concentrated
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FALCON CLEANSERS
Falcon Commercial Green Soap
Falcon Economy Scrub Soaps
Falcon Liquid Terrazzo Soap
Falcon Liquid Linseed Soap
Vegetable Oil Jelly Soap
Falcon Cleaning Crystals

DEODORANTS
Falcon Blockettes
Falcon Crystals
Falcon Blocs

DISINFECTANTS
Falcon Colloidal Disinfectant
Falcon Formaldehyde Sprays
Falcon Pine Disinfectant

PLUMBING CLEANSERS
Falcon Powdered Bowl Cleaner
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For a steady, profitable, repeat business, hitch your sales story to the Falcon line — to the sanitation products that meet every sanitation need. With Falcon, you offer a product that can back up your promise of dependability, proven performance and satisfaction. You offer a product made under laboratory control with prescription care — a *better product at no extra cost.* It will pay you well to investigate Falcon Sanitation Products. For complete information, write us today.

EAGLE SOAP CORPORATION
HUNTINGTON INDIANA

FALCON SANITATION PRODUCTS

Specifications*

Chip Soap (P-S-566a)

Becomes effective July 31, 1942, *superseding P-S-566.*

Chip soap shall be a soap in chip form made from soda and fats, without rosin, as free as possible from water and all substances other than true soap, of a light uniform color, free from disagreeable odor, and suitable for laundering and other washing, cleaning and scouring processes with soft water, when the presence of alkaline salts is not desirable.

Moisture and matter volatile at 105° C. shall not exceed 10 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 4 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.2 per cent. Matter insoluble in water shall not exceed 1.0 per cent. Anhydrous soap shall be not less than 85 per cent. Titer of the mixed fatty acids prepared from the soap must be not less than 39° C.

Cake Grit Soap (P-S-571a)

Becomes effective July 15, 1942, *superseding P-S-571.*

Cake grit soap shall be of the following types as specified: Type A—for fine work, such as glass and enamel; Type B—for scouring and scrubbing.

Type A—

Matter volatile at 105° ±2° C. shall not exceed 4 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na_2CO_3), shall not exceed 1 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 88 per cent nor more than 93 per cent. The insoluble siliceous material shall consist of not less than 90 per cent of ground feldspar. All of the insoluble siliceous material shall pass through a No. 100 sieve, and the residue retained on a No. 200 sieve shall not exceed 5 per cent. Sugar, and foreign matter shall not be present. Anhydrous soda soap shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts. The cakes shall be well compressed and of a satisfactory degree of friability, which shall not be materially affected or lessened after immersion in or contact with water. The material shall not scratch glass or enameled surfaces. The material shall be unscented and shall be of a light gray or white color.

Type B—

Matter volatile at 105° ±2° C. shall not exceed 5 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na_2CO_3), shall not exceed 3 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall not be less than 75 nor more than 85 per cent. The insoluble siliceous material shall be mainly quartz, and it all must pass through a No. 100 sieve. Sugar, and foreign matter shall not be present. Anhydrous soda soap shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts. The cakes shall be well compressed and of a satisfactory degree of friability, which shall not be materially affected or lessened after immersion in or contact with water. The material shall be unscented and shall be of a light gray or white color.

Hand Grit Soap (P-S-576)

Hand-grit soap shall be a cake soap containing about one-third its weight of clean, finely divided insoluble siliceous matter, as free as possible from water, uncolored, unscented unless otherwise specified, thoroughly saponified, and well compressed in firm, smooth cakes.

***GOVERNMENT** specifications on many soaps and detergents have been revised within recent months, and in many cases further changes are in prospect to fit government standards to war conditions. It is believed that the specifications listed are the latest versions as of the date of compilation of this material, but it should be emphasized that further changes may have been ordered by the time this draft reaches the reader. Many of the revised specifications which are reviewed on the following pages have not yet been put into effect, but will replace existing specifications on the dates noted. Only the essential requirements have been extracted in our summary. Copies of the complete specifications, including details as to packing, methods of analysis, etc., are available through the U. S. Federal Specifications Board.*

* General and detailed Requirements as specified in the Standard Stock Catalogue of the U. S. Federal Specifications Board.

Matter volatile at 105° C. shall not exceed 25 per cent. Deliveries which yield more than 25 per cent of volatile matter will be rejected without further test. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na_2CO_3), shall not exceed 1 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 25 nor more than 40 per cent. The insoluble siliceous material shall not yield more than 2 per cent of residue retained on a No. 100 sieve and not more than 10 per cent of residue retained on a No. 200 sieve. Rosin, sugar, and foreign matter shall not be present. Anhydrous soda soap shall be within 1 per cent of the difference between 100 and the sum of matter volatile at 105° C., insoluble siliceous material, and alkali as alkaline salts. The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 25 per cent of matter volatile at 105° C.

Liquid Laundry Soap (P-S-586)

Liquid soap for laundry use shall be a clear solution of pure potash (or potash and soda) soap with or without glycerol or alcohol and containing not less than 12 per cent by weight of a volatile organic solvent or a mixture of such solvents. It shall yield a clear solution on mixing with soft water, shall quickly form a satisfactory lather, shall have no injurious effect and leave no objectionable odor on fabrics. Materials washed with this soap shall have, after drying, a soft feel and not appear more boardy or stiff than when washed with soft water.

The material shall be a clear solution, shall yield a clear, homogeneous solution on mixing with soft water, shall quickly form a satisfactory lather, and shall leave no objectionable odor on fabric. Total anhydrous soap shall be not less than the equivalent of 24 per cent potash soap. Total matter insoluble in alcohol shall not exceed 0.5 per cent. Free alkali, calculated as potassium hydroxide (KOH), shall not exceed 0.05 per cent. Chloride, calculated as potassium chloride (KCl) shall not exceed 0.3 per cent. Total matter insoluble in water shall not exceed 0.1 per cent. Volatile organic solvent shall be not less than 12 per cent. All constituents shall be calculated on the basis of the original sample. Fabric washed with the liquid soap shall show no more shrinkage or felting than occurs with similar fabric washed with soft water at the same temperature. Colored materials when washed with this soap shall not fade more than when washed the same number of times at the same temperature with soft water alone.

Ordinary Bar Laundry Soap (P-S-591a)

Becomes effective July 15, 1942, *superseding P-S-*591.

Ordinary laundry soap shall be a well-made, uniformly mixed laundry or common soap, made from soda and fats, with no excessive proportion of rosin and a moderate amount of matter insoluble in alcohol, and shall be suitable for use with moderately hard water for general cleaning and laundry purposes.

Odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The materials shall not leave an objectionable odor on dishes or other objects after washing with a water solution of the soap and rinsing thoroughly with hot water. If desired, the odor of the material under the above conditions shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with samples from deliveries.

Matter volatile at 105° C. shall not exceed 36 per cent. Deliveries which yield more than 36 per cent volatile matter will be rejected without further test. The sum of free alkali or free acid total matter insoluble in alcohol and sodium chloride, shall be not less than 2 per cent nor more than 10 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.5 per cent. Free acid, calculated as oleic acid, shall not exceed 0.5 per cent. Matter insoluble in water shall not exceed 1 per cent. Chloride, calculated as sodium chloride (NaCl), shall not exceed 1.0 per cent. Rosin shall not exceed 25 per cent. Anhydrous soap shall be not less than 52 per cent. The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 36 per cent of volatile matter.

Powdered Laundry Soap (P-S-596a)

Becomes effective July 15, 1942, *superseding P-S-*596.

Powdered soap shall be a soap in powdered form made from soda and fats, without rosin, as free as possible from water and all substances other than true soap, of a light uniform color, free from disagreeable odor, and suitable for laundering and other washing, cleaning and scouring processes with soft water, when the presence of alkaline salts is not desirable.

Moisture and matter volatile at 105° C. shall not exceed 6 per cent. Deliveries which yield more than 6 per cent of matter volatile at 105° C. will be rejected without further test. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 4 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.2 per cent. Matter insoluble in water shall not exceed 1.0 per cent. Anhydrous soap shall be not less than 89 per cent. Titer of the mixed fatty acids prepared from the soap shall be not less than 39° C. Residue retained on a No. 12 sieve shall not exceed 1.5 per cent. The percentage of moisture and volatile matter will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 6 per cent of volatile matter.

Liquid and Paste Soap for Automobile, Floor and General Cleaning (P-S-598)

Soap for cleaning automobiles and floors and for general cleaning shall be of two types, *Type I—liquid*, and *Type II—paste*. *Type I* shall be a uniform, liquid soap made solely from whole neutral vegetable oils and potash; shall be soluble in soft water and when diluted with water shall act as a cleaner. The flash point shall be above its boiling point. It shall not contain any solvents or oils that will damage floor surfaces. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with a water solution of the soap and rinsing thoroughly with plain water.

Type II shall be a uniform gel or paste soap made solely from whole neutral vegetable oils and potash, having a yellowish-white to brownish-yellow color. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with a water solution of the soap and rinsing thoroughly with plain water. It shall dissolve readily to give a 0.15 to 0.2 per cent solution, using distilled water at 15.5 to 20° C. The solution so prepared shall yield a good suds.

The soaps shall conform to the requirements as shown in the table above:

Detail Requirements for Automobile Soaps

	Type I Liquid		Type II Paste	
	Minimum	Maximum	Minimum	Maximum
Moisture (toluol distillation methods)....percent..	....	....	....	55
Total matter insoluble in alcohol.....percent..	....	0.5	....	1.0
Free alkali, calculated as potassium hydroxide (KOH) .....percent..	....	.05	....	.1
Free acid, calculated as oleic acid.....percent..	....	.1	....	.2
Alkaline salts, calculated as potassium carbonate (K_2CO_3) .....percent..	....	.1	....	.2
Matter insoluble in distilled water.....percent..	.....	.1	....	.2
Chloride, calculated as potassium chloride (KCL) .....percent..	....	.3	....	.5
Unsaponified and unsaponifiabe matter.....percent..	....	.4	....	.8
Anhydrous soap, calculated as potash soap..percent..	20	....	43	....
Total sodium compounds, calculated as Na_2O percent..	....	.2	....	.5
Glycerol .....percent..	1.8	....	4	....
Iodine number (WIJS) of mixed fatty acids derived from the soap	100	150	100	150
Acid number of mixed fatty acids derived from the soap	195	205	1.95	205
Rosin	....	None	....	None
Sugar	....	None	....	None

Potash Linseed Oil Soap, Liquid and Paste, for Floor and General Cleaning (P-S-603)

Potash linseed oil soaps shall be of the following types: Type I—liquid; Type II—paste.

Type I shall be a uniform liquid soap made solely from whole neutral raw linseed oil and potash, shall be soluble in soft water and when diluted with water shall act as a cleaner. The flash point shall be above its boiling point. It shall not contain any solvents or oils that will damage floor surfaces. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with plain water and rinsing thoroughly with plain water.

Type II shall be a uniform translucent, firm gel or paste soap made solely from whole neutral raw linseed oil and potash, having a yellowish-white to greenish-yellow color. The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave an objectionable odor on surfaces after washing with plain water and rinsing thoroughly with plain water. The soap shall dissolve readily to give a 0.15 to 0.20 per cent solution, using distilled water at 15.5° to 20° C. The solution so prepared shall yield good suds. A solution of the soap in soft water shall act as a cleaner and shall not damage floor surfaces.

The soaps shall conform to requirements as shown in table below:

Detail Requirements for Potash Linseed Soap

	Type I		Type II	
	Minimum	Maximum	Minimum	Maximum
Moisture (toluol distillation method).....percent..	....	....	....	55
Total matter insoluble in alcohol.....percent..	....	0.5	....	1.0
Free alkali, calculated as potassium hydroxide (KOH) .....percent..	....	.05	....	.1
Free acid, calculated as oleic acid.....percent..	....	.1	....	.2
Alkaline sals, calculated as potassium carbonate (K_2CO_3) .....percent..	....	.1	....	.2
Matter insoluble in distilled water.....percent..	....	.1	....	.2
Chloride, calculated as potassium chloride (KCL) .....percent..	....	.3	....	.5
Acid number of mixed fatty acids derived from the Unsaponified and unsaponifiable matter.....percent..	....	.4	....	1.0
Anhydrous soap, calculated as potash soap..percent..	20	....	48	....
Total sodium compounds, calculated as NA_2O percent..	....	.2	....	.5
Glycerol .....percent..	1.8	....	4	....
Iodine number (WIJS) of mixed fatty acids derived from the soap.....	175	....	175	....
soap	190	205	190	....
Rosin	....	None	....	None
Sugar	....	None	....	None

Soap Powder (P-S-606a)

Becomes effective July 15, 1942, *superseding P-S-606.*

Soap powder shall be a uniform mixture of soap and sodium

carbonate, and/or other alkaline salts in powdered form. It shall be readily soluble in tepid water, shall contain no free caustic alkali or inert fillers, and shall be free from objectionable odor.

Anhydrous soap shall be not less than 15 per cent. Alkaline salts, calculated as sodium carbonate (Na_2CO_3) shall be not less than 30 per cent. The anhydrous soap and alkaline salts, calculated as sodium carbonate shall be not less than 55 per cent.

Salt-Water Soap (P-S-611a)

Becomes effective July 15, 1942, *superseding P-S-*611.

Salt-water soap shall be a soap well made from pure coconut oil, pure palm kernel oil, or a mixture thereof, and soda. It shall be entirely soluble in both sea water and fresh water and shall make a suitable lather. It shall be white in color and free from objectionable odor.

Moisture and matter volatile at 105° C. shall not exceed 55 per cent. Total matter insoluble in alcohol shall be not less than 2 per cent nor more than 3 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.5 per cent. Anhydrous soap shall be not less than 40 per cent. Matter insoluble in water shall not exceed 0.5 per cent. Chloride, calculated as sodium chloride (NaCl), shall be not less than 2.5 per cent nor more than 3.5 per cent. Rosin, sugar, and foreign matter shall not be present. The acid number of the mixed fatty acids prepared from the soap shall be not less than 240.

White Floating Toilet Soap (P-S-616a)

Effective April 15, 1942, *superseding P-S-*616.

White floating toilet soap shall be a cake soap of good, light color, without objectionable odor, thoroughly saponified, and so prepared as to float on water.

Moisture and matter volatile at 105° C. shall not exceed 34 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 2.0 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Chloride, calculated as sodium chloride (NaCl), shall not exceed 1 per cent. Matter insoluble in water shall not exceed 0.2 per cent. Anhydrous soap shall be not less than 62 per cent. Rosin, sugar, and foreign matter shall not be present. The acid number of the mixed fatty acids prepared from the soap shall be not less than 212. The percentage of matter volatile at 105° C. will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 34 per cent of volatile matter.

Liquid Toilet Soap (P-S-618a)

Becomes effective July 15, 1942, *superseding P-S-*618.

Liquid toilet soap shall be a clear solution of pure vegetable oil potash (or potash and soda) soap with or without glycerol or alcohol, suitably perfumed, and free from all foreign matter. It shall quickly form a satisfactory lather and have no injurious effect and leave no objectionable odor on the skin.

The odor shall not be objectionable in the soap as received or in a hot solution of the soap in water. The material shall not leave any objectionable odor on the skin or other surfaces after washing with a water solution of the soap and rinsing thoroughly with plain water. Unless otherwise specified each bidder shall submit with his proposal a one-quart sample, placed in a screw-top glass jar, to show odor, color, and consistency. The sample so furnished shall be kept for comparison with samples from deliveries.

The material shall be a clear solution, free from objectionable odor, other than from coconut oil, and shall form a satisfactory lather. Total anhydrous soap shall be not less than the equivalent of 15 per cent potash soap. Total matter insoluble in alcohol shall not exceed 0.5 per cent. Free alkali calculated as potassium hydroxide (KOH) shall not exceed 0.05 per cent. Chloride calculated as potassium chloride (KCl) shall not exceed 0.3 per cent. More than traces of sulphates and sugar shall not be present. All constituents shall be calculated on the basis of the original sample.

Milled Toilet Soap (P-S-621a)

Becomes effective July 15, 1942, *superseding P-S-*621.

Milled toilet soap shall be a high grade, milled cake soap as free as possible from water, either colored or uncolored, and mildly perfumed unless otherwise specified. thoroughly saponified, well compressed in firm, smooth cakes of a size and shape specified in the contract. It should lather freely when used with cold, soft, water.

Moisture and matter volatile at 105° C. shall not exceed 15 per cent. Deliveries which yield more than 15 per cent of volatile matter will be rejected without further test. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 1.7 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Matter insoluble in water shall not exceed 0.4 per cent. Unsaponified saponifiable matter shall not exceed 0.3 per cent. Anhydrous soap shall be not less than 83 per cent. Rosin, sugar and foreign matter shall not be present. The percentage of moisture and matter volatile will be computed on the basis of the soap as received, but all other constituents will be calculated on the basis of material containing 15 per cent of matter volatile.

Powdered Toilet Soap (for Dispensers) (P-S-626a)

Becomes effective July 15, 1942, *superseding P-S-*626.

Powdered toilet soap for use in dispensers shall be a thoroughly saponified soap in powdered form, made from soda and fats; shall be uncolored and mildly perfumed, unless otherwise specified; shall be a uniform, free-flowing, noncaking powder; and shall lather freely when used with cold soft water.

The material shall be a uniform powder and shall be freeflow-

ing and noncaking when used in a dispenser conforming to type III or IV of Federal Specification FF-D-396. It shall lather freely when used with soft water at room temperatures. Shall be mildly perfumed, unless otherwise specified. If desired, shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries.

Shall be uncolored, unless otherwise specified. Matter volatile at 105° ±2° C. shall not exceed 6 per cent. The sum of free alkali, total matter insoluble in alcohol, and sodium chloride shall not exceed 2.0 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Matter insoluble in water shall not exceed 0.2 per cent. Anhydrous soda soap shall be not less than 91 per cent. Rosin, sugar, and foreign matter shall not be present. The material shall meet the following fineness requirements:

Retained on—	*Min. Per Cent*	*Max. Per Cent*
No. 12 sieve.....	—	1.5
No. 45 sieve.....	50	—
No. 100 sieve.....	90	—

Toilet Soap-Borax Compound (for Dispensers) (P-S-628)

Becomes effective July 1, 1942.

Soap and borax compounds for use in dispensers shall be a uniform mixture of a thoroughly saponified soap and borax ($Na_2B_4O_7$. 10 H_2O); shall be uncolored and mildly perfumed, unless otherwise specified; shall be a free-flowing, non-caking powder, when used in a dispenser conforming to Type III or IV of Fed. Spec. FF-D-396. It shall lather freely when used with soft water at room temperature. Anhydrous soda soap shall be not less than 23 per cent and not more than 27 per cent. Borax, calculated as $Na_2B_4O_7$. 10 H_2O, shall be not less than 72 per cent and not more than 77 per cent. The pH of a 1 per cent solution by weight of the material in distilled water shall be not less than 9.0 and not more than 10.2 at 25° C., using a glass electrode. Matter insoluble in water shall not exceed 0.2 per cent. Rosin, sugar, and foreign matter shall not be present. The material shall meet the following fineness requirements.

Retained on—	*Min. Per Cent*	*Max. Per Cent*
No. 12 sieve.....	—	0
No. 45 sieve.....	5	—
No. 100 sieve.....	45	—

Caustic Soda for Cleaning (P-S-631a)

Caustic soda shall be of but one grade. It shall be furnished in airtight containers (13-ounce cans or rums) in flake, ground, or lump form, as specified in the invitation for bids. It shall conform to the following detail requirements:

Sodium hydroxide (NaOH) shall be not less than 95 per cent.

Carbonate, calculated as sodium carbonate (Na_2CO_3), shall be not more than 2 per cent.

Laundry Soda (Washing Soda) (P-S-641a)

Laundry soda shall be a white uniform powder composed of sodium carbonate and sodium bicarbonate. It shall conform to the following detail requirements:

	Maximum %	*Minimum %*
Total alkalinity, calculated as Na_2O	43	39
Sodium bicarbonate ($NaHCO_3$)	50	35
Sodium carbonate (Na_2CO_3)	50	35
Sum of sodium carbonate and sodium bicarbonate	—	85
Matter insoluble in water.	.1	—

Mechanics' Hand Detergent (P-D-221)

Detergent for mechanics use shall be of the following types, as specified: Type I—hand grit paste soap; Type II—hand scouring powder. It shall be a uniform mixture in paste or powder form, as specified, and shall be satisfactory for removing oil, grease, paint, printing inks, and other occupational soil from the hands of automobile mechanics, machinists, and other operatives without harmful effect on the skin.

Type I — (Hand grit paste soap).

The material shall be a uniform paste. The odor shall not be objectionable. If desired, shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries. Volatile matter at 105° to 110° C. shall not exceed 55 per cent. Deliveries which yield more than 55 per cent of volatile matter shall be rejected without further test. Alkaline salts, calculated as sodium carbonate (Na_2CO_3), shall not be more than 2 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.02 per cent. Free acid, calculated as oleic acid, shall not exceed 0.2 per cent. Anhydrous soap, calculated as soda soap, shall be not less than 8 per cent nor more than 16 per cent. Insoluble siliceous matter shall be not less than 25 per cent nor more than 50 per cent and shall conform to the following fineness requirements:

Retained on—	*Min. Per Cent*	*Max. Per Cent*
No. 40 sieve.....	—	0
No. 60 sieve.....	10	20
No. 80 sieve.....	30	45
No. 100 sieve.....	35	55
No. 200 sieve.....	60	—

The material shall retain the consistency of a firm paste after keeping in a closed container for 6 hours at 30° to 32° C. (86° to 89.6° F.). The material shall not deteriorate when kept in an airtight container. The percentage of matter volatile at 105° to 110° C. will be computed on the basis of the grit paste soap as received, but all other constituents will be calculated on the basis of material containing 50 per cent of matter volatile at 105° to 110° C.

Type II — (Hand scouring powder).

The material shall be a uniform, free-flowing powder. The odor shall not be objectionable. If desired, shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept

in an airtight, closed container for comparison with samples from deliveries. Volatile matter at 105° to 110° C. shall not exceed 5 per cent. Deliveries which yield more than 5 per cent of volatile matter shall be rejected without further test. Alkaline salts, calculated as sodium carbonate (Na_2CO_3), shall be not less than 2 per cent nor more than 5 per cent. The alkaline salts shall consist of borax, sodium carbonate or a mixture thereof. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Free acid, calculated as oleic acid, shall not exceed 0.2 per cent. Anhydrous soap, calculated as soda soap, shall be not less than 17 per cent. Insoluble siliceous matter shall be not less than 60 per cent nor more than 76 per cent and shall conform to the following fineness requirements:

Retained on—	*Maximum Per Cent*
No. 60 sieve	5
No. 100 sieve	30
No. 200 sieve	60

Rosin or sugar shall not be present. All constituents shall be reported on the basis of the sample as received.

Special Detergents (P-D-236)

Detergents for aluminum-ware shall be of the following types and classes:

Type I. Detergent for use in mechanical dishwashing machines.

Type II. Detergent for manual cleaning.

Class A. Non-abrasive cleaner.

Class B. Abrasive cleaner.

The material used in Type I detergent shall be suitable for use in mechanical dishwashing machines and shall be substantially uniform in appearance throughout. It shall be free from objectionable odor, and shall dissolve readily in tepid water. Cleaner may be supplied in either powder, granule, chip, or liquid form provided it conforms to the detailed requirements.

The material used in Type II, Class A non-abrasive cleaner shall be suitable for any type of manual washing where abrasiveness is not desired, and shall be substantially uniform in appearance throughout. It shall be free from objectionable odor, and shall dissolve readily in tepid water. Cleaner may be supplied in either powder, granule, chip, or liquid form provided it conforms to the detailed requirements.

The material used in Class B abrasive cleaner shall be suitable for any uses requiring a manual cleaner where soil adheres too tenaciously for non-abrasive cleaners. It may be supplied in the form of a liquid, a solid, a paste, or a combination of any two of the above. Combinations of metal wools and soaps may be supplied. The cleaner shall be free from objectionable odor and from poisonous or irritant chemicals.

Each bidder shall submit with his proposal for Type I and Type II. Class A, materials a sample of the material that he proposes to furnish. Each sample shall be labeled to show the amount recommended for softening 10 gallons of water containing 10 grains (171 p.p.m.) of hardness, calculated as $CaCO_3$, and may be used by the inspector or purchasing officer in the recommended proportions for determining the performance or cleaning ability of the material.

Samples from deliveries shall be subjected to similar tests. If specified by the purchasing officer, the material, when used in the proportions recommended by the bidder, shall be at least equal in cleaning ability to a standard sample furnished, or indicated, by the purchasing officer.

Type I. Detergent for use in mechanical dishwashing machines shall conform to the following detail requirements: *Turbidity* — When tested by the method described in paragraph F-2b (1), (See complete specifications) the weight of the precipitate obtained shall be less than 20 mg for 250 ml of solution. *Foaming* — When tested by the method described in paragraph F-2c, no foam or suds shall be detected. *Corrosion* —When tested by the method described in paragraph F-2f (1), the detergent solution shall be without visible action on bare or anodic oxide- coated aluminum alloy. *Water-Softening Capacity*—A suds which is stable for not less than 5 minutes shall be formed when the material is tested as described in paragraph F-2d. *Hydrogen Ion Content and Buffer Index*—When tested by the method outlined in paragraph F-2g, the detergent solution shall have an initial pH of not less than 10.0, and shall have a pH of not less than 9.0 after the addition of the specified amount of hydrochloric acid solution. *Cleaning Ability.*—The material shall clean satisfactorily when tested as indicated in paragraph F-2a. The relative cost of the detergent shall be determined from the product of the delivered price per pound of the detergent and the number of pounds of the detergent required to treat 1000 gallons of water containing 10 grains (171 p.p.m.) per gallon of hardness, calculated as $CaCO_3$. The amount of detergent used in this computation shall be that required to give the concentration used in paragraphs F-2b (1) and F-2d of this specification.

Type II, Class A. Non-Abrasive Cleaner shall conform to the following detail requirements:

Turbidity—The turbidity of the cleaner solution shall conform to the test described in paragraph F-2b (2). (See complete Specification.) *Corrosion*—When tested by the method described in paragraph F-2f (2), the cleaner solution shall be without visible action on bare or anodic oxide-coated aluminum alloy. *Water-Softening Capacity and Soap*—A suds which is stable for not less than 5 minutes shall be formed when the material is tested as described in paragraph F-2e. *Hydrogen Ion Content*—The pH of a 1 per cent solution by weight of the cleaner in distilled water shall not exceed 10.5 when measured as indicated in paragraph F-2h. *Cleaning Ability.*—The material shall clean satisfactorily when tested as indicated in paragraph F-2a. *Relative Cost*—The relative cost of the cleaner shall be determined from the product of the delivered price per pound of the cleaner and the number of pounds of the cleaner re-

quired to treat 1000 gallons of water containing 10 grains (171 p.p.m.) per gallon of hardness, calculated as $CaCO_3$. The amount of cleaner used in this computation shall be that required to give the concentration used in paragraphs F-2b (2) and F-2e of this specification.

Type II, Class B. Abrasive Cleaner shall conform to the following detail requirements: *Abrasion*—When tested by the method described in paragraph F-2i (See complete Specification) the cleaner shall produce no undesirable scratching. *Corrosion*—When tested by the method described in paragraph F-2f (3), the cleaner shall be without visible action on bare or anodic oxide-coated aluminum alloy. *Rinsibility*—When tested by the method described in paragraph F-2j, the cleaner shall be removed completely from a glass plate. *Cleaning Ability*—The material shall clean satisfactorily when tested as indicated in paragraph F-2a.

Sweeping Compound (P-C-591a)

Sweeping compound shall consist of a uniform mixture of the materials as specified for each type and shall be artificially colored or uncolored as specified by the purchaser. If desired, shall conform to the color of a sample mutually agreed upon by buyer and seller.

Type I — (Mineral-oil compound).

Odor shall not be objectionable. If desired shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries. The material shall, on use, not stain flooring or adjacent surfaces. The material shall not give off flammable vapors when tested according to section F-2b. Material not meeting the test for flammable vapors will be rejected without further test. Water (matter volatile at 105-110° C.) shall be not more than 10 per cent by weight. Refined mineral oil (such as paraffin oil) shall be not less than 15 per cent and not more than 20 per cent by weight. Clean, fine, sharp sand or feldspar sand shall be not less than 35 per cent and not more than 50 per cent by weight. Not more than 1 per cent of sand shall be retained on a No. 20 sieve when tested according to section F-2j. Fatty oils shall not be present. The remainder shall be finely ground sawdust. Not more than 1 per cent of sawdust shall be retained on a No. 8 sieve when tested according to section F-2j.

Type II — (Water-wax-emulsion compound).

Odor shall not be objectionable. If desired shall conform to the odor of a sample mutually agreed upon by buyer and seller. The mutually agreed upon sample shall be kept in an airtight, closed container for comparison with samples from deliveries. The material shall not stain flooring surfaces on which it may be used. The material shall not give off flammable vapors when tested according to section F-2b. Material not meeting the test for flammable vapors will be rejected without further test. Water (matter volatile at 105-110° C.) shall be not more than 12 per cent by weight. Clean, fine, sharp sand, or feldspar sand shall be not less than 60 per cent and not more than 70 per cent by weight. Not more than 1 per cent of sand shall be retained on a No. 20 sieve when tested according to section F-2j. Finely ground sawdust shall be not less than 5 per cent and not more than 10 per cent by weight. Not more than 1 per cent of sawdust shall be retained on a No. 8 sieve when tested according to section F-2j. The remainder shall be waxes and emulsifying agents.

Type III — (Cottonseed hull bran-mineral oil).

Odor shall not be objectionable. If specified, the compound shall conform to the odor of a sample mutually agreed upon between buyer and seller. The mutually agreed upon sample shall be kept in an air-tight, closed container for comparison with samples from deliveries. The material shall not stain floors. It shall not give off flammable vapors. Volatile matter at 105° to 110° C. shall not be more than 10 per cent by weight. Refined mineral oil (such as paraffin oil) shall be not less than 3.5 per cent nor more than 4.5 per cent by weight, for class 1; not less than 5.5 per cent nor more than 6.5 per cent by weight for class 2; not less than 7.5 per cent nor more than 8.5 per cent by weight for class 3. The remainder of the compound shall consist of cottonseed hull bran. The cottonseed hull bran shall be of such fineness that not more than 1 per cent, by weight, shall be retained on a No. 8 sieve. Fatty oils shall not be present.

Metal Polish (P-P-556a)

Metal polish shall be of the following types:

Type I. Powder.

Type II. Liquid.

Type III. Paste.

Metal polish of each type shall be of but one grade. It shall be a product, with or without a finely divided abrasive, suitable for the removal of tarnish from brass, nickel, copper, and other metals and capable of producing a luster thereon.

All types shall give good protection to the polished surface against tarnishing influences, and shall be so constituted and prepared that, by reason of application and polishing, they—

(1) Shall not scratch metals.

(2) Shall not leave the metal discolored or caked with abrasive material.

(3) Shall not be detrimental in any manner to metals.

(4) Shall not show any unnecessary caking of type I or III polish in the containers. The abrasive material in liquid (Type II) polish, shall show no caking in the container, which cannot be readily put into suspension by thoroughly shaking the containers. The abrasive material shall be of such particle size that 100 per cent will pass through a No. 200 sieve.

Metal polish shall be free from acids, cyanide of potassium or other

cyanides, grit, or other ingredients having detrimental effects on metals. Shall clean quickly, leaving a bright polished surface, with a full luster for the material being polished. When so specified the tarnish-removing and luster-producing properties shall be equal in quality to those of a standard sample furnished or approved by the purchaser. The polished surface shall remain free from corrosion or discoloration for a period of at least 24 hours.

Polish shall have good keeping qualities and be guaranteed for 1 year from the date of actual receipt at point of delivery. During the guaranty period the successful bidder shall replace without cost any metal polish which through deterioration, evaporation, caking in the container, or other causes, becomes unfit for use. Replacement metal polish shall also be guaranteed for 1 year from date of receipt. The metal polish will be stored in original, unopened shipping containers, not subjected to freezing temperature or to excessive artificial heat. The amount of volatile matter, at 105° to 107° C., in either type II or III polish, shall not exceed 70 per cent by weight, of the polish. The flammability of the liquid contents of types II and III polishes shall be not less than 39° C.

Silver Polish (P-P-571b)

Silver polish shall be of the following types:

Type I. Liquid.

Type II. Paste.

Type III. Powder.

Silver polish shall be of but one grade, and shall consist solely of finely ground diatomaceous or infusorial earth, prepared as a powder (Type III) or suitably compounded with a neutral soap, to produce a liquid (Type I) or a paste (Type II).

All types of silver polish shall have—

(a) Good tarnish-removing properties.

(b) Good luster-producing properties and shall be so constituted and prepared that by reason of application and polishing, they—

(1) Shall not scratch silverware.

(2) Shall not leave silver discolored.

(3) Shall not leave any residue (which will cause discoloration) not removable by washing in warm soapy water.

(4) Shall not show any unnecessary caking of Type II or III polish in the containers. The abrasive material in liquid (Type I) polish, shall show no caking in the container which cannot be readily put into suspension by thoroughly shaking the containers.

The diatomaceous or infusorial earth in all types of silver polish shall be of such particle size that 100 per cent will pass through a No. 200 sieve.

Silver polish shall be free from acids or cyanides. Shall clean quickly leaving a bright polished surface, with a full luster for the material being polished. It shall have good keeping qualities and be guaranteed for 1 year from the date of actual receipt at point of delivery. During the guaranty period the successful bidder shall replace, without cost any silver polish which through deterioration, evaporation, caking in the container or other causes, becomes unfit for use. Replacement silver polish shall also be guaranteed for 1 year from date of receipt. The silver polish will be stored in original unopened shipping containers not subjected to freezing temperature or to excessive artificial heat. The amount of volatile matter, at 105° to 107° C., in either Type I or II polish, shall not exceed 70 per cent by weight, of the polish. The flammability of the liquid contents of Types I and II polishes shall be not less than 39° C.

Stove Polish (P-P-576)

Stove polish shall produce a deep, lustrous black color when applied as directed by the manufacturer. It shall produce no odors upon burning and shall produce a durable coating that will not readily be burned off.

Type I.—Polish, stove, liquid, shall be of such consistency that the addition of a fluid will not be necessary in order to make it free-flowing. The vehicle of the polish shall be a non-inflammable liquid.

Type II.—Polish, stove, paste, shall be non-inflammable and shall be of such consistency that it can be readily applied.

Type III.—Polish, stove, powder, shall readily form a paste with water, and shall be non-inflammable.

Type IV.—Polish, stove, cake, shall readily disintegrate in water and form a paste and shall be non-inflammable.

Scouring Powder for Floors (P-P-591)

Scouring powder for floors shall be of the following types, as specified: Type A—for fine marble floors; Type B—for tile or ceramic and terrazzo floors; Type C—soap scouring compound.

Type A—(For fine marble floors).

Matter volatile at 105° to 110° C. shall not exceed 10 per cent. Deliveries which yield more than 10 per cent of volatile matter shall be rejected without further test. The sum of sodium carbonate (Na_2CO_3) and anhydrous soap shall not exceed 7 per cent nor be less than 2 per cent. Free alkali, calculated as sodium hydroxide (NaOH) shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 85 per cent nor more than 95 per cent. All of the insoluble siliceous material shall pass through a No. 100 sieve, and the residue retained on a No. 200 sieve shall not exceed 5 per cent. The material shall not scratch nor discolor marble. The material shall be a uniform powder, shall be unscented, and shall be of a light gray or white color.

Type B—(For tile or ceramic and terrazzo floors).

Matter volatile at 105° to 110° C. shall not exceed 10 per cent. Deliveries which yield more than 10 per cent of volatile matter shall be rejected without further test. The sum of sodium carbonate (Na_2CO_3) and anhydrous soap shall not be less than 2 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. In-

soluble siliceous material shall be not less than 80 per cent nor more than 95 per cent. The insoluble siliceous material shall not yield more than 1 per cent of residue retained on a No. 60 sieve and not more than 10 per cent of residue retained on a No. 80 sieve. The material shall be a uniform powder, shall be unscented, and shall be of a light-gray or white color.

Type C—(Soap scouring compound).

Matter volatile at 105° to 110° C. shall not exceed 6 per cent. Deliveries which yield more than 6 per cent of volatile matter shall be rejected without further test. Carbonated alkali, calculated as sodium carbonate (Na_2CO_3) shall not be less than 6 per cent nor more than 20 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Anhydrous soap shall be not less than 3 per cent nor more than 10 per cent. Insoluble siliceous material shall be not less than 60 per cent nor more than 90 per cent. The insoluble siliceous material shall not yield more than 1 per cent of residue retained on a No. 60 sieve and not more than 10 per cent of residue retained on a No. 80 sieve. The material shall be a uniform powder, shall be unscented, and shall be light-gray or white in color.

Scouring Powder for Glass (P-P-596a)

Becomes effective July 15, 1942, *superseding P-P-596.*

Shall be a fine, uniform powder, and shall be suitable for cleaning highly polished glass surfaces which must transmit light efficiently, such as cabin windows and windshields of aircraft.

The material shall clean glass surfaces satisfactorily without scratching the glass or leaving an oily or other film on the surface. The material shall be a uniform, free-flowing powder, shall be scented or unscented, and shall be white or light gray in color. Matter volatile at 105° ±2° C. shall not exceed 4 per cent. Alkali as alkaline salts (total alkalinity of matter insoluble in alcohol), calculated as sodium carbonate (Na_2CO_3), shall not exceed 5 per cent. Free alkali, calculated as sodium hydroxide (NaOH), shall not exceed 0.1 per cent. Insoluble siliceous material shall be not less than 85 per cent nor more than 93 per cent, and shall consist of ground feldspar or other insoluble siliceous abrasive that will not scratch highly polished glass surfaces. All of the insoluble siliceous material shall pass through a No. 200 sieve. Rosin, sugar, and foreign matter shall not be present. Anhydrous soda soap shall be not less than 4 per cent and shall be within 1 per cent of the difference between 100 and the sum of the matter volatile at 105° ±2° C., insoluble siliceous material, and alkali as alkaline salts.

Technical Trisodium Phosphate (O-T-671a)

Technical trisodium phosphate shall be a white, uniform product and may be either granular, flake, or crystalline.

It shall contain not less than 98 per cent of trisodium phosphate calculated as $Na_3PO_4.12H_2O$, from the total phosphoric anhydride (P_2O_5). It shall conform to the following detail requirements:

	Minimum %	*Maximum* %
Trisodium phosphate, calculated as $Na_3PO_4.12H_2O$, from total P_2O_5	98	—
Total alkalinity to methyl orange, calculated as Na_2O	16	19
Phosphoric anhydride (P_2O_5)	18.3	—
Matter insoluble in water	—	0.1

Sodium Fluoride (O-S-601)

Sodium fluoride shall be a good grade commercial product in the form of a uniform, fine, dry, powder, suitable for dusting, free from lumps or gritty material and practically free from matter insoluble in water. It shall contain not less than 90 per cent of sodium fluoride, NaF, the remaining 10 per cent to consist of the usual impurities in a good grade of commercial sodium fluoride, such as sodium silico-fluoride, sodium bifluoride, sodium carbonate, sodium chloride, sodium sulfate and added dye. It shall be colored by incorporating with it a suitable organic dye to produce a color ranging from "Pale Nile Blue" to "Nile Blue" as designated by Ridgeway's Color Standards.

Soda Ash (O-S-571a)

Soda ash shall be of the following types, as specified:

Type I. 58% ordinary or light.
Type II. 58% extra-light.
Type III. 58% dense.

Soda ash shall be a high-grade anhydrous sodium carbonate in powdered form and shall be of the type specified by the purchaser. It shall conform to the following detail requirements for each type as indicated:

Chemical composition — Soda ash, Types I, II, and III, after drying for 1 hour at 150° to 155° C. shall conform to the following requirements as to chemical composition:

	Per Cent
Total alkalinity, calculated as Na_2CO_3, minimum	99.2
Sodium bicarbonate ($NaHCO_3$), maximum	.5
Matter insoluble in water, maximum	.25

Loss in Weight at 150° *to* 155° *C.*—The loss in weight on heating about 2g, accurately weighed, of the material (Types I, II, or III) as received for 1 hour at 150° to 155° C. shall not exceed the following limits:

	Per Cent
(a) If sample is taken at manufacturer's works, maximum	1
(b) If sample is taken elsewhere, maximum	4

Volume—Thirty grams of the soda ash as received shall have an apparent volume in milliliters for each type indicated, as follows:

	Minimum	*Maximum*
Type I, light	50 ml.	65 ml.
Type II, extra-light	75	95
Type III, dense	25	35

Insect Powder (O-P-571)

Insect powder shall consist of the powdered flower heads of Chrysanthemum (Pyrethrum) cinerariaefolium (Trev. Bocc.). It shall be a product resulting from the reduction to an impalpable powder of insect

flower heads of the species named and free from added stems and other adulterants. It shall be made of flowers that have been properly harvested and cured so as to retain the maximum insecticidal efficiency and are free from mold, and the powder shall have the characteristic color and odor. It shall not contain insect flower stems in excess of the amount occurring attached to flowers as harvested, and in no case in excess of 5 per cent. It shall not contain more than 2 per cent of ash insoluble in dilute hydrochloric acid.

Floor Wax (P-W-141)

Floor wax, when applied in accordance with the manufacturer's directions, shall dry to a film that polishes easily to a hard flexible surface of a soft wax sheen. It shall not be so highly colored as to stain the surface; and shall dry within 20 minutes to a semitransparent nontacky film which shall show no signs of whiteness. Floor wax shall consist essentially of blended waxes in a volatile solvent. It shall be free from oil, soap, or rosin.

Type I (liquid)—Shall be a heavy bodied liquid mixture of sufficient fluidity to permit freedom of application at 20° to 25° C. There shall be no appreciable settling of the suspended material. The liquid floor wax shall be smooth and shall be free from all lumpy particles and granules. There shall be not less than 11 per cent, by weight, of nonvolatile matter in the liquid floor wax. The nonvolatile material shall meet the following requirements.

	Min.	*Max.*
Softening point	71°C.	—
Acid value	—	8
Saponification value ...	20	70
Ash content, per cent..	—	0.5

The liquid vehicle shall consist of volatile solvents, such as turpentine, volatile mineral spirits, etc. The flash point of the volatile solvent shall be not less than 28° C. (closed cup).

Type II (paste).—Shall be a semi-solid material at 20° to 25° C. There shall be no separation of liquid from paste. The paste shall be perfectly smooth and shall be free from lumpy particles and granules. There shall be not less than 20 per cent, by weight, of nonvolatile matter in the paste floor wax. The nonvolatile material shall meet the following requirements:

	Min.	*Max.*
Softening point	71°C.	—
Acid value	—	8
Saponification value ...	20	70
Ash content, per cent..	—	0.5

The liquid vehicle shall consist of volatile solvents, such as turpentine, volatile mineral spirits, etc. The flash point of the volatile solvent shall be not less than 28° C. (closed cup).

Water Emulsion Floor Wax (P-W-151)

Floor Water-Emulsion Wax shall be furnished in two types and in one grade. Type I.—Regular. Type II.—Concentrated.

The floor water-emulsion wax, when applied in accordance with the manufacturer's directions, shall dry to a lustrous finish without rubbing, buffing, or polishing. The film produced shall adhere firmly to the surface without checking, cracking, or peeling and shall be transparent and practically colorless. The floor water-emulsion wax shall be suitable for use on sealed floors and floorings. It shall have no objectionable odor. It shall be a stable aqueous colloidal emulsion of waxes and resins. The emulsion shall be a free-flowing fluid that can readily be applied with an applicator such as lamb's wool, cotton cloth, or a mop to spread easily and homogeneously. The film so applied shall dry to a lustrous finish.

Water-emulsion floor wax shall meet the following requirements:

Type I.—Regular.

Nonvolatile matter (total solids).—Shall be not less than 12 per cent.

Softening point of solids.—Shall be not less than 80° C.

Ash content (based on nonvolatile matter content).—Shall not exceed 3.0 per cent.

Free caustic alkali—None.

Volatile solvents.—Shall be free from petroleum distillates and other organic volatile solvents.

Water solubility.—Shall be not more than 15 per cent.

Dilution properties.—Shall be capable of dilution in any proportion with distilled water without breaking the emulsion.

Type II.—Concentrated.

Nonvolatile matter (total solids).—Shall be not less than 20 per cent. Other characteristics same as above.

Wood and Cork Floor Sealers (TT-S-176a)

Floor sealers shall be furnished in one grade and two classes for use on wood and cork floors as follows: Class 1—minimum nonvolatile content 40 per cent; Class 2—minimum nonvolatile content 25 per cent. The manufacturer is given wide latitude in the selection of raw materials and processes of manufacture, provided that the sealer produced meets the requirements and tests described in this specification.

When applied in accordance with directions the product shall satisfactorily seal the pores of the flooring by absorption leaving no apparent surface film and shall provide a satisfactory foundation for a finishing material such as varnish, liquid or paste wax, or water-emulsion wax. Unless otherwise specified, floor sealer shall be furnished "natural" in color. Floor sealer shall have sufficient fluidity to permit application with a bristle brush or lamb's wool mop.

Both classes of sealers shall be nonpigmented materials and shall be capable of being thinned with turpentine or mineral spirits. The respective sealers shall meet the following requirements: *Nonvolatile matter*—Class 1, not less than 40 per cent; Class 2, not less than 25 per cent. *Set to touch*—in not less than 1 hour and not more than 3 hours. *Dry, hard and tough*—in not more than 7 hours. *Water test*—The sealer shall meet the cold water and boiling water immersion tests as follows:

Flow the sealer on two tin panels and allow to dry for 48 hours. (See Specification for method.) Place one of these panels in a beaker containing about 2.5 inches of distilled water at room temperature (immersing the end of the panel which was uppermost during the drying period) and leave in water for 24 hours. After removing the panel from the water and allowing to dry for 2 hours, the sealer shall show no whitening and no more than very slight dulling and no other visible defects. Place the other panel in a beaker containing about 2.5 inches of boiling water (immersing the end of the panel which was uppermost during the drying period) and leave in the boiling water for 30 minutes. After removing the panel from the water and allowing to dry for 2 hours, the sealer shall show no whitening and no more than a very slight dulling and no other visible defects.

Toughness—Shall pass a 50 per cent Kauri reduction test at 25° C. (77° F.). *Flash point*—Shall be not below 30° C. (86° F.). (Closed-cup.)

Viscosity at 25° C.—Class 1, not more than 0.50 poise; Class 2, not more than 0.220 poise.

Skinning—Shall be negligible when received and after 48 hours in a tightly closed half-filled container. *Odor*—The odor in the can, during drying, and/or after drying shall not be abnormally offensive or disagreeable.

Performance — Floor sealer shall meet performance tests as follows:

Apply the sealer to a properly sanded (with a No. 00 garnet paper) maple wood panel, with a pad of clean cheesecloth, applying a fairly liberal coat. Note fluidity and ease of application. Permit the sealer to set 15 minutes for absorption into the surface of the wood. Wipe off the excess sealer remaining on the surface using a pad of clean cheesecloth (the excess sealer removed in this manner shall be wiped readily and cleanly from the surface). Leave the surface free from all excess sealer. Let dry for 24 hours at a temperature between 21° to 32° C. Then apply a second coat of sealer in accordance with the procedure indicated above. Let dry for 24 hours. The treated panel shall meet the following requirements:

Surface finish—The panel shall show no surface film and the treated surface of the panel shall have a soft, even sheen. The sealer shall not cloud or obscure the grain of wood.

Resistance to stain—Place several drops of blue-black writing ink (ink to be in accordance with Federal Specification TT-I-563) on the surface of the treated panel at various places and allow to remain for 3 minutes. After taking up the ink with a piece of blotting paper and the spots wiped lightly with a damp cloth, there shall be no indication of the presence of ink.

Treatment of worn spots—Simulate on the treated panel worn areas by rubbing the surface with No. 0 steel wool. Over these areas apply a thin coat of the sealer. Burnish these areas immediately after application of the sealer with No. 00 steel wool. When dry, the treated area shall blend with the surface of the panel without showing any signs of lap marks.

Application of finishing materials—Two treated panels shall be treated; one with floor wax (meeting Federal Specification P-W-141) and the other with water-emulsion floor wax (meeting Federal Specification P-W-151). The properties of the finishing materials shall not be adversely affected by the sealed surface.

Shaving Cream and Soap (FFF-C-641)

Shaving soap and cream shall be of the following types and classes:

Type I. Soap:

Class (A)—Cakes.
Class (B)—Stick.
Class (C)—Powder.

Type II. Cream:
Class (A)—Lather cream.
Class (B)—Brushless cream.

Shaving soaps, Type I, shall be high-grade products free of caustic alkalinity that yield a heavy, creamy lather that will remain moist upon the face until the shaving is completed. In the case of Class B (stick), the soap shall adhere to the face when the stick is moistened and rubbed thereon. In the case of class C (powder), the material shall be free-flowing and shall not cake in the container.

Shaving cream—Class A, shall be a soft, uniform cream or paste free from free alkali. It shall be of such consistency that it will not flow from the tube without pressure. not require undue pressure to extrude it, and not lose its form when extruded from the tube. It shall distribute well into the bristles of a shaving brush and shall yield a heavy, creamy lather that will remain moist upon the face until the shaving is completed.

Brushless cream — Class B shall be a soft, uniform cream or paste free from free alkali. It shall remain soft in the tube and shall spread easily.

Type I. Shaving soap, Classes A, B, and C—

Color—shall be as specified by the purchaser. *Odor*—shall be pleasant and shall be as specified by the purchaser. *Lathering quality*—shall be satisfactory. Shall conform to the following test:

Shake 100 ml of a 0.2 per cent (based on the nonvolatile matter) solution of the soap (Type I, classes, A, B, and C and Type II, class A) in distilled water at room temperature in a stoppered, 200-ml graduated cylinder 30 times in 15 seconds, and let stand at room temperature for 1 hour. The volume of foam above the liquid shall extend to the top of the cylinder and shall not decrease more than 10 per cent of its original volume in 1 hour.

Caking (Class C only)—The material shall be free-flowing and shall not cake in a closed container at room temperature.

Type II. Shaving cream, Classes A and B—

Color—shall be as specified by the purchaser. *Odor*—shall be pleasant and shall be as specified by the purchaser. *Consistency*—shall be as stated above. When the packed tubes are kept at a temperature of 32° C. (90° F.) for 24 hours and then at a temperature of 15° C. (59° F.) for 24 hours, the material at the end of each 24-hour period shall on the application of slight pressure extrude from the tube as a smooth mass without any notable change in consistency and without any hardening or separation of the ingredients.

The containers shall be the usual collapsible tube type having rustproof caps for Class A, or collapsible tubes or jars for Class B. The container including the cap shall not be attacked, chemically, by the shaving cream. There shall be no discoloration of the shaving cream in storage and the tubes shall be constructed in such manner as will prevent the closed end from opening when pressure is applied to extrude the cream for use. Shaving cream that becomes discolored or that chemically attacks containers or caps while in storage during a period of 18 months after delivery shall be replaced without cost. *Lathering quality (Class A only)*—shall be satis-

factory. Shall conform to the test described above.

Type I. Shaving soap, Classes A, B, and C—shall conform to the following detail requirements:

The percentage of volatile matter shall be computed, and reported on the soap as received. The percentages of all other constituents shall be calculated and reported on an assumed volatile matter content of 10 per cent for Classes A and B, and of 2 per cent for Class C.

Type II. Shaving cream, Classes A and B—shall conform to the following detail requirements:

The percentage of moisture shall be computed, and reported on the shaving cream as received. The percentages of all other constituents shall be calculated and reported on an assumed moisture content of 50 per cent for Class A, and 70 per cent for Class B.

TYPE I	Classes A and B cake and stick		Class C powder	
	Min.	Max.	Min.	Max.
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
Matter volatile at 105° C	—	10	—	2
Matter insoluble in hot 95 per cent ethyl alcohol	—	.8	—	.8
Free alkali	—	None	—	None
Free fatty acids (calculated as stearic acid)	—	1.0	—	1.0
Matter insoluble in hot distilled water	—	.4	—	.4
Anhydrous soap (calculated as potash soap)	87	—	96	—
Amount passing a No. 20 sieve	—	—	100	—

TYPE II	Class A lather cream		Class B brushless cream	
	Min.	Max.	Min.	Max.
	Per Cent	*Per Cent*	*Per Cent*	*Per Cent*
Moisture (xylol distillation method)	—	50	—	70
Matter insoluble in hot 95 per cent ethyl alcohol	—	.3	—	—
Free alkali	—	None	—	None
Free fatty acid (calculated as stearic acid)	—	6.5	15	—
Matter insoluble in hot distilled water	—	.3	—	—
Anhydrous soap (calculated as potash soap)	40	—	—	—

Publications of the Department of Commerce National Bureau of Standards Washington, D. C. ON DETERGENTS and RELATED SUBJECTS

THE publications for which prices are indicated may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C. Single copies of Letter Circulars (having LC numbers) can be secured from the Bureau of Standards, Washington, D. C., without charge.

C-70 Materials for the Household 50c

Describes the more common materials used by the household, comprising paints, cement, roofing, inks and dyes, adhesives, cleaners and preservatives, etc. Each title is treated under the general heads of composition and definition, sources, properties, uses, tests, preservation, hints as to selection and use, and references.

C-424 Washing, Cleaning and Polishing Materials....15c

Discusses briefly the chemistry of soap making, describes the various types of soap products in common use, and outlines some of the manufacturing processes. This circular also briefly discusses the use of water in laundering, cleansing action, alkaline cleansers, bleaches, laundry sours, bluing, starch, dry cleaning, polishes, etc.

Letter Circulars

LC 124—Recommended Specification for Powdered Ammonia.

LC 242—Anti-Dimming Preparations for Glass Surfaces.

LC 275—Polishes.

LC 338—Detergents and Certain Detergent Aids.

LC 339—Floor Oils.

LC 340—Sweeping Compounds (also known as "Floor Sweep" and "Dust Down").

LC 341—Drainpipe Cleaners or Solvents.

LC 388—The Care of Floors.

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Rotenone and Rotenoids

(*From Page* 150)

Jones, H. A., and J. J. T. Graham. 1938. Determination of rotenone in derris and cube. III. An improved crystallization method. Assoc. Off. Agr. Chem. Jour. 21: 148-51.

McIndoo, N. E., and A. F. Sievers. 1924. Plants tested for or reported to possess insecticidal properties. U. S. Dept. Agr. Bul. 1201.

Roark, R. C. 1936. *Lonchocarpus* species (barbasco, cube, haiari, nekoe, and timbo) used as insecticides. U. S. Dept. Agr., Bur. Ent. and Plant Quar. E-367.

Roark, R. C. 1937. *Tephrosia* as an insecticide—a review of the literature. U. S. Dept. Agr., Bur. Ent. and Plant Quar. E-402.

Roark, R. C. 1938a. Abstracts of foreign and domestic patents relating to *Derris, Lonchocarpus, Tephrosia*, and rotenone. U. S. Dept. Agr., Bur. Ent. and Plant Quar. E-446.

Roark, R. C. 1938b. *Lonchocarpus* (barbasco, cube, and timbo)—a review of recent literature. U. S. Dept. Agr., Bur. Ent. and Plant Quar. E-453.

Roark, R. C. 1939. Insect pests of derris. Jour. Econ. Ent. 32: 305-9.

Roark, R. C. 1940. Abstracts of recent foreign and domestic patents relating to *Derris, Lonchocarpus, Tephrosia*, and rotenone. First supplement to E-446. U. S. Dept. Agr., Bur. Ent. and Plant Quar. E-514.

Roark, R. C. 1941. Abstracts of recent foreign and domestic patents relating to *Derris, Lonchocarpus, Tephrosia, and rotenone*. Second supplement to E-446. U. S. Dept. Agr., Bur. Ent. and Plant Quar.

Siegler, E. H., and L. D. Goodhue. 1939. Effect of particle size of some insecticides on their toxicity to the codling moth larva. Jour. Econ. Ent. 32: 199-203.

Sievers, A. F. 1940. The production and marketing of derris root. U. S. Dept. Agr., Bur. Plant Indus., Div. Drug and Related Plants.

Wilson, H. F., C. E. Dieter, and H. L. Burdick. 1941. Insecticidal dusts. Soap 17(4): 99-101. 121.

1941 Soap Sales Statistics

PRODUCTION and sale of soaps of all kinds reached a new high level in 1941,—the dollar value of sales of 77 firms reporting regularly to the Association of American Soap and Glycerine Producers amounting to $327,063,831—which represented an increase of 25 per cent over the figure for the previous year. The association tabulates sales quarterly on the basis of reports from association members.

Sales for the year 1941 represented a volume of 3,147,991,414 pounds of soaps other than liquid, the value of this total being $324,486,516, and 3,549,951 gallons of liquid soaps valued at $2,577,315. (Figures in the table to the right do not correspond exactly, as quarterly comparisons are possible for only 76 of the reporting concerns.)

The four 1941 quarters were each well above the corresponding totals for the previous year, and each quarter also showed a substantial margin above the average quarter for the five-year period (1935-1939) which was $60,305,633. The sales peak for 1941 was hit in the second quarter when sales broke all previous records to reach the high point of $90,624,470.

To get a more accurate picture of the figures of the entire industry, the association figures would have to be increased by from 10 to 20 per cent. Estimates of the association are that their figures represent approximately 90 per cent of the domestic industry on a volume basis—although private estimates indicate that the scope of the association survey may not be quite this wide—and 80 per cent might represent a more accurate figure.

	1935	1936	1937	1938
First Quarter	$51,669,187	$51,287,861	$72,597,194	$67,126,708
Second Quarter	56,446,698	54,375,873	58,348,987	64,323,947
Third Quarter	46,118,132	67,694,004	65,136,966	67,888,213
Fourth Quarter	47,877,732	55,313,259	52,594,824	57,385,034
	1939	1940	1941	
First Quarter	$68,338,484	$69,143,392	$79,286,950	
Second Quarter	64,731,687	65,433,673	90,624,470	
Third Quarter	77,792,913	66,187,491	86,191,178	
Fourth Quarter	59,064,959	58,481,653	70,030,672	

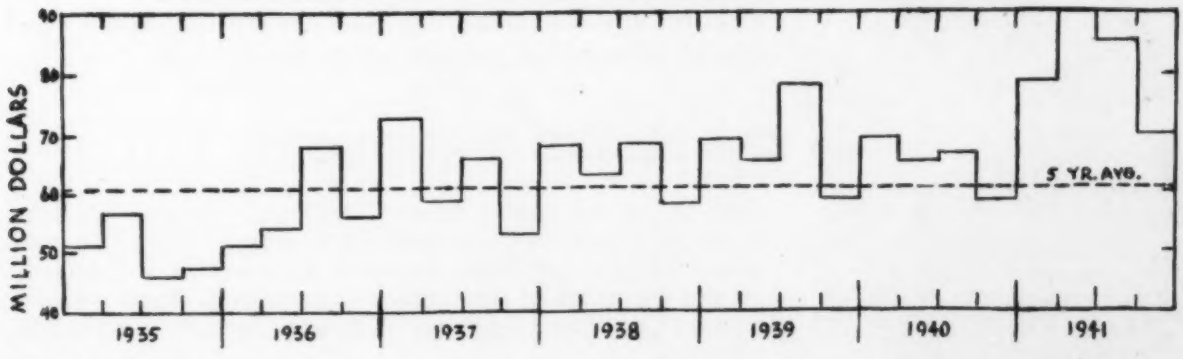
For the companies whose figures are reported in the table above, dollar sales over the past seven years are given as follows:

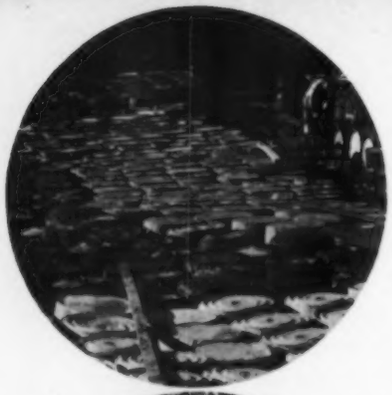
For 1941.....$326,133,270
For 1940..... 259,246,209
For 1939..... 269,928,043
For 1938..... 256,723,902
For 1937..... 248,677,971
For 1936..... 228,670,997
For 1935..... 202,111,749

A smaller number of firms report comparable poundage figures and those reporting give total aggregate sales for 1941 of 3,138,702,817 pounds, which was some 18 per cent ahead of 1940 and not quite 14 per cent ahead of 1939.

When viewed from the perspective of the past six or seven years the sharp increase in 1941 sales is even more impressive, coming as it does on the top of a series of sales increases in the intervening years. Since 1935 there has been an increase in the industry's soap sales in every year except 1940, a decline of minor proportions being noted that year as a reaction from the heavy war-stimulated sales of the third quarter of 1939. Over the full period 1935-1941, there has been a net gain in soap sales of over sixty per cent. A reaction may logically be expected during 1942, aggravated perhaps by the shortage of tropical soap making oils.

Soap Sales Figures By Quarters, 1935-1941
Based on Reports to the Association of American Soap & Glycerine Producers





• STOCKS

Sufficient quantities of raw materials are kept on hand at all times to handle our normal output. Due to unusually heavy demand for certain grades of disinfectants, certain of our raw materials are at a minimum and immediate delivery is impossible. With but few exceptions orders are shipped within 48 hours after they are received at our plant.



• SHIPPING FACILITIES

No order is too large and none too small to have our best attention. We own and control a fleet of tank cars holding from 8,000 to 10,000 gallons each. Other size containers range from 55-gallon drums down to one-gallon cans. Returnable drums are charged extra on invoices but may be returned for full refund, freight charges collect. Customer shipping instructions are carefully observed.



For more than a Third of a Century SPECIALISTS in the manufacture of DISINFECTANTS and sanitary CHEMICAL PRODUCTS for the wholesale trade.

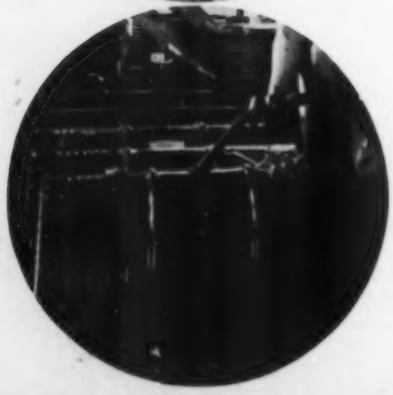
BAIRD & McGUIRE, INC.

Holbrook, Mass. St. Louis, Mo.



• LABORATORY CONTROL

All products are manufactured by us on an extensive scale from ingredients which are subjected to the most exacting chemical tests. No adulterants of any kind are used. Price is made secondary to quality, and we warrant every material to be exactly as represented, and to give the maximum of satisfaction. All disinfectants are tested for Germicidal Efficiency in our own and in commercial bacteriological laboratories.



• CERTIFIED PRODUCTS

This is not an empty name. The term, "Baird's Certified" has come to mean that the product is unexcelled in its field. The purity of raw materials entering the plant are checked rigidly as are the finished disinfectants made from these materials. The Phenol Coefficient and Inert Content are plainly stated on every package.

PINE OIL DISINFECTANTS | COAL TAR DISINFECTANTS | CRESYLIC DISINFECTANTS

N.A.I.D.M. SPECIFICATIONS

Official Specifications of the National Association of Insecticide and Disinfectant Manufacturers for

INSECTICIDES and DISINFECTANTS

OFFICIAL SPECIFICATIONS Liquid Household Spray Insecticide

(Adopted December, 1936)

1. A household spray oil type insecticide shall be harmless to man and warm blooded household animals, when used as directed.

2. When sprayed, as directed, it shall not stain fabrics, wall paper and general household furnishings, that are not stained by dry cleaning fluid.

3. When used in the customary manner it shall not contaminate closed packages of food materials commonly found in homes.

4. It shall not corrode metals.

5. It shall have no objectionable odor, and no particular odor shall be specified.

6. It shall have a flashpoint not less than 125° F. when tested in the Tagliabue closed cup.

7. It is recommended that it be purchased on a direct competitive basis with the Official Test Insecticide of the National Association of Insecticide and Disinfectant Manufacturers, Inc., by using the method of test specified in literature accompanying the Official Test Insecticide.

8. The Association hereby adopts the following grades (the plus or minus figures shown therein designating the points over or under the Official Test Control Insecticide when the "Unknown" and the "Control" are tested at the same time in the same manner):

Designation	*Grade*	*Kill Classification*
AA	Excellent	+ 16 or higher
A	Very Good	+ 6 to + 15
B	Equal to Official Test Insecticide	+ 5 to — 5

● ●

1: Standard Specifications for Liquid Hypochlorites Disinfectant, Deodorant and Germicide

Composition—Liquid hypochlorites are available in three forms: *one,* sodium hypochlorite alkaline with sodium hydrate, sodium carbonate or the other alkaline salts; *two,* hypochlorites which are essentially sodium hypochlorite and alkaline with calcium hydrate; and *three,* calcium hypochlorite solutions alkaline with calcium hydrate. A delivery of any one of these shall be satisfactory unless otherwise specified.

Physical Requirements — The hypochlorite solution shall be a homogeneous liquid. It shall be miscible with water of zero hardness at 20°C. (68°F.) in all proportions. It shall be ready for dilution when delivered.

Chemical Requirements—The available chlorine content which shall not be less than 2.5 per cent by weight shall be clearly stated on the label. Its rate of deterioration shall not be more than 10 per cent of its original available chlorine content when stored in the orginal container for six months in a cool, dark place at maximum temperature of 68°F. (20°C.).

Identification—Each container shall be marked with the name of the material, the brand (if any) of the material, the name of the manufacturer, net contents therein, and date of manufacture.

Packing—The hypochlorite shall be delivered in standard commercial containers of the size as called for in the schedule. Each container holding one gallon or more shall be stoppered with a closure having vent.

2: Standard Specifications for Pine Oil Disinfectant

1. The product shall be manufactured from pure steam distilled pine oil and emulsifying agent and remain clear and homogeneous under normal and reasonable conditions of storage.

2. It shall contain not less than 60 per cent by weight steam distilled pine oil.

3. It shall contain not more than 10 per cent water.

4. The phenol coefficient shall be determined by the F.D.A. Method of Test against B. typhosus and be clearly stated on the label attached to each shipping container.

5. It shall not contain kerosene or other petroleum distillates.

6. The product shall make a stable emulsion in water of zero hardness at 20°C. (68°F.) when diluted at the rate of 5 per cent. The emulsion shall stand for at least twenty-four hours showing no sign of oil float (unsaponified or clear free oil).

3: Standard Specifications for Emulsifying Type Coal Tar Disinfectant

1. It shall be made from phenols of coal tar or petroleum origin, or combinations of such phenols with coal tar oils, and an emulsifying agent.

2. It shall contain not less than 65 per cent by weight of phenols and coal tar oils.

3. It shall contain not over 10 per cent of water, by weight.

4. It shall not contain kerosene or any petroleum distillates other than phenols of petroleum origin.

5. The phenol coefficient shall be determined by the Food and Drug Administration Method using B. typhosus as test organism, and shall be clearly stated on the label attached to each shipping container.[1]

6. It shall make milky emulsions with water of zero hardness at 20° C (68° F) when diluted in the ratio of 5 parts of disinfectant to 95 parts of water for disinfectants having phenol coefficients of 10 or under; and in the ratio of 2 parts of disinfectant to 98 parts of water for disinfectants having phenol coefficients of over 10. These emulsions shall show not more than a trace of oily float or sediment when stored for 5 hours at room temperature.

7. It shall remain limpid, showing no sign of naphthalene crystallization down to 0° C in 3 hours.

8. It shall contain less than 5 per cent of benzophenol.

9. The disinfectant, under normal and reasonable conditions of storage, shall remain stable and show no loss of germicidal value.

Certification and Labeling

10. The following form of statement on labels[2], invoices, etc., is recommended:

"The .....Company certifies this phenolic disinfectant (emulsifying type) to conform to all requirements of the standard adopted by the NATIONAL ASSOCIATION OF INSECTICIDE AND DISINFECTANT MANUFACTURERS, INC., and recorded as Commercial Standard CS70-.... by the National Bureau of Standards of the U. S. Department of Commerce.
Phenol coefficient....."

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[1]This type of disinfectant is available with phenol coefficients ranging from 2 to 30, and higher. Contract buyers should specify the phenol coefficient desired.

[2]When used on labels this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

4: Standard Specifications for Cresylic Disinfectants

Scope

1. This standard covers materials, physical and chemical properties, and certification of quality of phenolic disinfectant (soluble type), classified under two groups as follows:

(a) Group I—Phenolic disinfectants having phenol coefficients from 1.5 to 5[1].

(b) Group II—Phenolic disinfectants having phenol coefficients above 5.

Detail Requirements (Group I)

2. Group I disinfectants shall be made from cresol or cresylic acid of coal tar or petroleum origin, and a dissolving agent.

3. Group I disinfectants shall contain not less than 50 per cent of cresol or cresylic acid, as determined by the method prescribed in U. S. Pharmacopoeia XI for the assay of cresol in the Saponated Solution of Cresol.

4. Group I disinfectants shall contain not more than 25 per cent by weight of inert ingredients (water plus glycerine, and organic solvents, if any).

5. The phenol coefficient of Group I disinfectants shall be determined by the Food and Drug Administration Method using B. typhosus as the test-organism, and shall be clearly stated on the label attached to each shipping container.

6. Group I disinfectants shall contain less than 5 per cent of benzophenol.

7. Group I disinfectants shall make clear solutions with water of zero hardness at 20° C (68° F) within the concentration range of from 1 to 4 per cent; such solutions, when kept in closed containers, shall remain either practically clear or become only slightly opalescent when allowed to stand for 24 hours at 20° C (68° F) away from direct light.

8. Group I disinfectants shall show no soap separation when cooled down to 0° C and held at this temperature for 3 hours.

Detail Requirements (Group II)

9. Group II disinfectants shall be made from phenols of coal tar or petroleum origin, and a dissolving agent.

10. Group II disinfectants shall contain not less than 50 per cent of phenols[2].

11. Group II disinfectants shall contain not more than 25 per cent by weight of inert ingredients (water plus glycerine and organic solvents, if any).

12. The phenol coefficients of Group II disinfectants shall be determined by the Food and Drug Administration Method using B. typhosus as the test-organism, and shall be clearly stated on the label attached to each shipping container.

13. Group II disinfectants shall contain less than 5 per cent of benzophenol.

14. Group II disinfectants shall make clear solutions with water of zero hardness at 20° C (68° F) at concentrations of 2 per cent or less; such solutions, when kept in closed containers, shall remain either practically clear or become only slightly opalescent when allowed to stand for 24 hours at 20° C (68° F) away from direct light.

15. Group II disinfectants shall show no soap separation when cooled down to 0° C and held at this temperature for 3 hours.

Certification and Labeling

16. The following form of statement on labels[3], invoices, etc., is recommended:

"The .....Company certifies this disinfectant to conform to all requirements for (Group I) (Group II) of the standard adopted by the NATIONAL ASSOCIATION OF INSECTICIDE AND DISINFECTANT MANUFACTURERS, INC., and recorded as Commercial Standard CS71-...., by the National Bureau of Standards of the U. S. Department of Commerce.
Phenol Coefficient....."

[1]The disinfectants of Group I fall within the type commonly designated "Cresylic disinfectants."

[2]A satisfactory method of assay of all possible types of disinfectants comprised by Group II is not available, but work on the subject is in progress.

[3]When used on labels, this statement is in addition to, and not in lieu of, the ingredient statement required by the Insecticide Act of 1910.

Gnadinger-Corl Method

(*From Page* 190)

After removing the tubes from the bath they should be treated as nearly alike as possible; therefore it is inadvisable to run more than 3 or 4 tubes at a time.

The dextrose used as standard in this work was of the highest purity obtainable and was dried for 30 days over sulfuric acid. All volumetric glassware, weights and thermometers used were Bureau of Standards certified. Colorimeter readings were made with artificial light and a blue glass screen.

The foregoing method was applied to pyrethrum flowers and stems and to daisy flowers. The pyrethrin content varied, in the samples examined, from 0.40 to 1.21 per cent, duplicate determinations agreed within 0.03 per cent or less. Stems contained only one-tenth as much pyrethrins as the flowers; daisy flowers contained no pyrethrins.

Floor Finish Specifications

Specifications of Maple Flooring Manufacturers Association for Heavy Duty Finishes For Maple, Beech and Birch Floors

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A. General Requirements

1. The material shall be suitable for application to new Maple, Beech and Birch flooring or to such flooring which has been in service.

2. The presence of waxes will be permitted within the limits of the detailed requirements.

B. Detailed Requirements

1. The material shall not contain more than 1.0 per cent of water unless it is an emulsion of adequate stability in which case the water shall be the dispersed phase.

2. The material shall not contain more than 0.1 per cent of suspended inorganic matter.

3. The flash point of the material shall not be under 100° F.

4. The material shall contain not less than 28 per cent by weight of non-volatile matter.

5. The film formed by the material, when thoroughly dried, shall not be brittle.

6. The film formed by the material, when thoroughly dried, shall be resistant to abrasion.

7. The film formed by the material, when thoroughly dried, shall be resistant to cold water.

8. The material when applied according to the directions of the manufacturer shall not markedly darken the wood.

9. The material when applied according to the directions of the manufacturer and allowed to dry in the air for 24 hours, shall not be slippery, sticky or gummy.

Specifications For Gymnasium-Type Finishes For Maple, Beech and Birch Floors

(Adapted to gymnasium floors — where general public is not admitted—and other floors under light traffic.)

A. General Requirements

Same as Heavy Duty Finishes.

B. Detailed Requirements

These shall be the same as for Heavy Duty Finishes except as noted below.

4. The material shall contain not less than 40 per cent by weight of non volatile matter.

The F. D. A. Method

Official Method of U. S. Food & Drug Administration, U. S. Department of Agriculture, and National Assn. of Insecticide and Disinfectant Manufacturers for Determination of Phenol Coefficients of Disinfectants

By G. L. A. RUEHLE and C. M. BREWER
U. S. Food and Drug Administration

ALL antiseptics and disinfectants shipped or offered for shipment in interstate commerce or offered for import into or export from the United States are subject to the provisions of the Federal insecticide act, the Federal food and drugs act, or both. In the enforcement of these acts it is necessary to determine the accuracy of the bactericidal and antiseptic claims made for such products. A number of methods have been developed for determining bactericidal effectiveness, but all of them possess certain disadvantages. Of course it is impossible to devise tests which will apply in all cases, but during the past 20 years the Insecticide and Fungicide Board and the Food and Drug Administration have found certain methods to be particularly well adapted to their purposes.

Confusion has arisen from the fact that, in many cases, manufacturers have not used the same methods of testing their products, as a basis for preparing their labels, as those used by the administration. This possibility of misunderstanding would be obviated if the same methods were employed by all, and many manufacturers, recognizing this, have requested information as to the methods employed by the Food and Drug Administration. In view of this, it seemed desirable to publish them in a form which would make them generally available.

This circular, therefore, describes briefly the methods usually employed in the insecticide control laboratory for testing official samples of antiseptics and disinfectants. No attempt is made to review the literature of disinfectant testing in detail, but the most important papers relating to the methods here presented are cited.

Determination of Phenol Coefficient[1]

There are in general use at the present time three methods of determining the phenol coefficient; the Hygenic Laboratory (H. L.) method (11)[2], that of Rideal-Walker (R-W) (7), and the method developed by this laboratory. It has been realized for a long time, especially among qualified workers in the field of phenol coefficient testing, that there were numerous handicaps and minor deficiencies to be encountered in the routine manipulation of both the H. L. and R-W methods. Lloyd P. Shippen, formerly bacteriologist of the Insecticide and Fungicide Board, after much experience in the testing of disinfectants, devised a method for obtaining phenol coefficients, utilizing as its basis the best features of the two older tests. Under pressure of a great volume of routine work this method was first put into practice more than 15 years ago and found to be so satisfactory that it has come to be used for testing the great majority of the germicides now received at the Food and Drug Administration.

George F. Reddish, successor to Doctor Shippen, later published this method under the name, "The R-W modified method" (5).

The procedure of Shippen has been little changed, but the standards for the resistance of the test organisms, *Eberthella typhi* (Schröter) Buchanan,[3] and *Staphylococcus aureus* Rosenbach, have been firmly established and provisions for the use of other organisms have been added. The method, as here published, is designated the "Food and Drug Administration phenol coefficient method" or briefly, the "F. D. A. method."

The differences in the three methods are shown in Table I. (See Next Page).

There need be very little confusion arising from substituting the F. D. A. method as a test for products previously tested by either the R-W or the H. L. methods. The phenol coefficients of the large number of substances chemically related to phenol (the only type of disinfectants for which the H. L. method is accepted) (11) are, in most cases, practically the same, whether tested by the F. D. A. or the H. L. method. Not only has continued use of the method in this laboratory shown this to be true (2), but collaborative experiments in five other laboratories (unpublished) confirm this fact. In comparing this method with the R-W method, similar results in general are obtained, although a somewhat lower coefficient usually results with coal-tar products having high coefficients. However, the higher results sometimes obtained by the R-W method may be misleading. R-W broth is not well adapted for the optimum growth of the test organism; hence negative subcultures frequently indicate that the organism has been killed, when in fact it may have been only rendered incapable of growing in this culture medium.

The curtailment in labor, time, and material through the use of the F. D. A. method renders it particularly valuable where a large number of samples are involved. The F. D. A. method is considerably superior to the R-W method in producing consistent results (4, 12). The medium employed is better adapted to bacterial growth, and the technic is not restricted to the use of one test organism (*Eberthella typhi*) as is the case of the R-W and H. L. methods. Moreover, the stock cultures of *E. typhi* and *Staphylococcus aureus*, the organisms principally used in germicidal testing, remain sufficiently constant in their resistance to phenol, when grown to an adjusted medium, to necessitate but one phenol control,

---

[1] For the benefit of those unfamiliar with testing disinfectants a brief statement of the principles of determining phenol coefficients is made. The phenol coefficient is a figure expressing the ratio of the killing efficiency of a disinfectant as compared with that of phenol tested under identical conditions. The sample to be tested is diluted and the dilutions arranged in a series of decreasing concentrations (increasing dilutions). To these a specified amount of the test organism in broth culture is added. At the end of fixed periods of time a small portion of the mixture of diluted disinfectant and test organism is transferred to a nutrient culture medium and incubated. No growth in the subculture indicates that the organism has been killed. The greatest dilution (weakest concentration) of the disinfectant killing in a definite time period is divided by the greatest dilution of phenol killing in the same time period. This ratio is the phenol coefficient. It should be noted that the phenol coefficient is not based on a comparison of different time intervals but on a comparison of different concentrations acting for specified time periods.

[2] Numbers in parentheses refer to Literature Cited. Page 196.

[3] Throughout this paper the term *Eberthella typhi* is used for *Bacillus typhosus*, in accordance with the nomenclature adopted by the committee on classification of the Society of American Bacteriologists (1).

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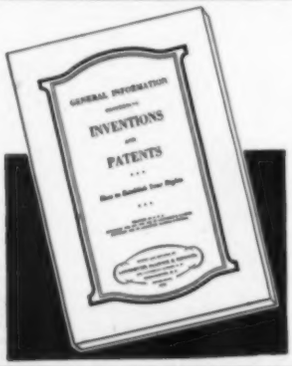
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DISINFECTANTS AND ANTISEPTICS TESTED BY STANDARD PROCEDURES
TOXICITY INDEX DETERMINED BY CHICK EMBRYO METHOD OF SALLE

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TABLE 1.—*Differences in media and manipulation of the three methods of determining phenol coefficient.*

Item	F. D. A. method	R-W method	H. L. method
Composition of medium	Peptone[1], 10 gm. Liebig's beef extract, 5 gm. Salt, 5 gm. Water, 1,000 c. c. Boil 20 minutes.	Peptone[2], 20 gm. Liebig's beef extract, 10 gm. Salt, 10 gm. Water, 1,000 c. c. Boil 30 minutes.	Peptone[1], 10 gm. Liebig's beef extract, 3 gm. Salt, 5 gm. Water, 1,000 c. c. Boil 15 minutes.
Acidity of medium	pH 6.8	+1.5 No definite pH	Unadjusted but pH between 6.0 and 7.0.
Amount of culture medium in tube.	10 c. c.	5 c. c.	10 c. c.
Amount of culture added to diluted disinfectant.	0.5 c. c. to 5.0 c. c.	0.5 c. c. to 5.0 c. c.	0.1 c. c. to 5.0 c. c.
Resistance of test culture to phenol (dilutions killing in 10 minutes but not in 5 minutes).	1-90	1-90 to 1-110	No limits stated.
Condition of tube in test	Plugged with cotton	Plugged with cotton	Open tubes.
Temperature of test	20° C.	15-18° C.	20° C.
Time intervals of the test	5, 10, and 15 minutes	2½, 5, 7½, and 10 minutes	5, 7½, 10, 12½, and 15 minutes.
Amount of medication mixture transferred (size of loop).	4 mm. loop (of No. 23 B. and S. gage wire).	4 mm. loop (of No. 27 Imperial gage wire).	Spiral loop (four spirals wrapped around a No. 13 B. and S. gage wire. Made of No. 23 B. and S. gage wire).
Calculation of phenol coefficient.	Highest dilution not killing in 5 minutes but killing in 10 minutes divided by same for phenol.	Highest dilution not killing in 5 minutes but killing in 7½ minutes divided by same for phenol.	Mathematical mean of highest dilutions showing no growth in 5, 10, and 15 minutes divided by same for phenol.

[1] Armour's, Special batch set aside for disinfectant testing.
[2] Allen and Hanbury's.

though two controls are used frequently as an additional check. This allows the use of nine dilutions of the unknown with 30-second intervals between transfers, or 14 when 20-second intervals are used. With a little practice, 20-second intervals allow sufficient time.

The F. D. A. method will be used by this laboratory in determining the dilutions at which miscible coal-tar disinfectants, and many other products to which the method is applicable, should be used for disinfecting purposes. As heretofore, this dilution should be at least equal in strength to a 5 per cent solution of phenol when tested against *Eberthella typhi* (20 times the phenol coefficient figure) and should be based on a phenol coefficient not higher than that obtained by the F. D. A. method.

FOOD AND DRUG ADMINISTRATION METHOD

THE test organism is a 22-26 hour culture of *Eberthella typhi* (Hopkins strain) incubated and grown in nutrient broth at 37° C. The broth contains the following ingredients: 5 gm. of Liebig's beef extract, 5 gm. of chemically pure sodium chloride, and 10 gm. of Armour's peptone (for disinfectant testing) in 1,000 c. c. of distilled water. The mixture is boiled for 20 minutes, made up to original weight (or volume) with distilled water, and adjusted with NaOH to pH 6.8 using the colorimetric method (3, p. 405-421). It is then filtered through paper, tubed (10 c. c. to each tube), and the tubes plugged with cotton and sterilized at 15 pounds pressure for 40 minutes. The test culture is transferred daily in this medium for not more than one month. At the end of each month, a fresh transfer is made from the stock culture. The stock culture is carried on agar slants of the same composition as the broth medium plus 1½ per cent Bacto-Agar (Difco), adjusted to pH 7.2 to 7.4. This medium is also filtered, tubed, plugged with cotton, sterilized, and slanted. The stock culture is transferred once a month, and the test organism is taken from the month-old stock culture. When the test organism has not been transferred daily, it is advisable to make four or five consecutive daily transfers in broth before using it for testing purposes, to be reasonably sure of its conforming to the phenol resistance requirements. When only one transfer has been skipped the following transfer from the 48-hour culture is usually satisfactory for use after 24 hours. Transfers are made with the platinum loop used in the test. Only cultures giving readings within the following limits are considered satisfactory:

Phenol	5 min.	10 min.	15 min.
1-90	+	+	0
1-100	+	+	+
or			
1-90	0	0	0
1-100	+	+	+

The following reading is that most usually obtained and is the most convenient:

Phenol	5 min.	10 min.	15 min.
1-90	+	0	0
1-100	+	+	+

PHENOL

The phenol used must meet the requirements of the United States Pharmacopoeia, and in addition the congealing point must not be below 40° C. A 5 per cent solution may be used as a stock solution if kept in a relatively cool place in well-stoppered amber-colored bottles protected from the light. This 5 per cent solution should be standardized with decinormal bromine (described under "phenol" (10, *p.* 823), or with sodium bromide and bromate solution (9, *pp.* 404-405).

APPARATUS

Besides a number of accurately graduated pipettes, 100-c. c. glass-stoppered graduates or volumetric flasks are almost essential for the making of correct dilutions. All pipettes and graduates should be standardized. The test tubes for containing the dilutions should be large enough to permit transfers being made without touching the sides with the transfer needle. Lipped pyrex (to withstand constant flaming) test tubes 25 by 150 mm. serve very well as these seeding or medication tubes. A water bath for holding the dilutions at the desired temperature must be provided. To maintain the temperature practically constant dur-

ing the period of the test, the bath should be made so as to contain a relatively large volume per surface area, and should be insulated. The lid is made with well-spaced holes admitting the 25-mm. tube, but not the lip. The most convenient form of subculture tubes (tubes containing medium for incubating the tested organisms, as well as for growing the test culture) are ordinary non-lipped bacteriological test tubes 20 by 150 mm. The racks for holding the subculture tubes may be any convenient style. Blocks of wood with a series of holes bored in them are quite satisfactory. Dimensions depend somewhat on the size of the incubator, but the holes should be well spaced to insure quick selection and easy manipulation during the test. It is an added convenience to have the holes large enough to admit the medication tubes while dilutions are being made. The transfers are made with a 4-mm. (inside diameter) single loop of number 23 B. & S. gage platinum wire, 1½ to 3 inches long, set in a suitable holder such as an aluminum or glass rod approximately 0.5 cm. in diameter.

PROCEDURE

One per cent stock dilutions of the substance to be tested (or any other convenient dilution of the disinfectant, depending on the strength are made up, usually in the glass-stoppered cylinders or volumetric flasks from which the individual dilutions are then prepared. For rapid routine work, the final dilutions may be made directly in the medication tubes. In this case all excess over 5 c. c. must be removed. For more precise work and when high dilutions are required or volatile substances are dealt with, it is preferable to make up all of the dilutions in volumetric flasks and then transfer 5 c. c. of the final dilution to the medication tubes. These tubes containing 5 c. c. of each dilution (including the phenol control) are placed in the water bath at 20° C., for five minutes until the temperature of the bath is reached. Even slight variations in temperature may affect the results. The dilutions should cover the range of the killing limits of the disinfectant within 5-and 15-minute periods and should at the same time be spaced sufficiently close together to insure the desired accuracy. Five-tenths of a cubic centimeter of the test culture is then added to each of the dilutions at a time interval corresponding to the interval at which the transfers are to be made. Thus by the time 10 tubes have been seeded at 30-second intervals, four and one-half minutes will have elapsed and a 30-second interval intervenes before the transference to the subcultures is commenced. The culture is added from a graduated pipette holding sufficient culture to seed all the tubes in any one set. The pipette may be loosely plugged with cotton at the mouth end before sterilizing, as a precautionary measure. Unfiltered culture is used, but it should be thoroughly shaken 15 minutes before use and allowed to settle. The temperature of the culture should be practically that of the water bath before being added.

In inoculating the medication tubes they should be held in a slanting position, after removal from the bath, and the culture run in without the tip of the pipette touching the disinfectant. The tip may be allowed to rest against the side of the tube just above the surface of the liquid. The tubes are agitated gently but thoroughly after the addition of the culture to insure even distribution of the bacteria. Five minutes from the time of seeding the first medication tube, transfer 1 loopful of the mixture of culture and diluted disinfectant from the medication tube to the corresponding subculture tube. To facilitate transfer of uniform drops of the medication mixture, the loop is bent to form a slight angle with the stem and the medication tube is held at an angle of 60°. In other words, as the loop is withdrawn, its plane should be parallel with the surface of the liquid. At the end of 30 seconds, a loopful is transferred from subculture tube and the process continued for each successive dilution. Five minutes from the time of making the first transfer, a second set of transfers is begun for the 10-minute period and finally repeated for the 15-minute period. Before each transfer the loop is heated to red heat in the Bunsen flame and the mouth of every tube is flamed. Sterilization of the loop is effected immediately after making the previous transfer (before replugging the tubes) to allow time for sufficient cooling. Time does not permit flaming the tubes after making the transfer. For this reason, care in transferring and seeding is necessary. Due caution is observed to prevent either the seeding pipette or the transfer needle from touching the sides or mouth of the medication tube; neither should cotton threads be found adhering to the sides or mouth of these. After completion of the transferring, the subculture tubes are incubated at 37° C. for 48 hours and results read. Microscopic examinations usually suffices for this, but occasionally agglutination with antityphoid serum will aid in reading doubtful results. A 3-day incubation period or agar streak or microscopic examination may be resorted to in determining feeble growth. especially when organisms other than *Eberthella typhi* are used.

There are certain types of germicidal agents, such as many of the mercury compounds, which give very high results by phenol coefficient tests (8). Due to the high inhibitory value of such substances in preventing growth in the subcultures these figures are frequently misleading. For germicides used in the disinfection of such objects as surgical instruments, this is of particular importance and must be taken into account. Failure to appreciate this characteristic of certain compounds is much more likely to lead to error when *Staphylococcus aureus* is used rather than *Eberthella typhi* as the test organism. That false values may not be obtained for products of this type, or for any other disinfectant giving suspiciously high results, the subcultures should contain very large amounts of medium (not less than 200 c. c.) or they should be retransferred by carrying at least 4 loopfuls from the first subculture to a second tube of broth, as recommended by Shippen (8).

Other groups of disinfectants in common use, for which the phenol coefficient method of testing is not well adapted, are those compounds containing chlorine as the active agent as well as oxidizing agents in general. These are affected so materially by the pressure of organic matter that a phenol coefficient statement may grossly misrepresent their value under practical conditions of use and is very apt to be misleading to the consumer when placed on the label.

CALCULATION OF PHENOL COEFFICIENT

THE results of the test are expressed in terms of the phenol coefficient. This represents the germicidal value of the diluted disinfectant as compared with the diluted phenol control. It is a figure obtained by dividing the numerical value of the greatest dilution (the denominator of the fraction expressing the dilution) of the disinfectant capable of killing *Eberthella typhi* in 10 minutes but not in 5 minutes, by the greatest dilution of phenol showing the same results; that is, by the phenol control. Thus, if the results were as follows:

Disinfectant (X):

	5 min.	10 min.	15 min.
1-300	0	0	0
1-325	+	0	0
1-350	+	0	0
1-375	+	+	0
1-400	+	+	+
Phenol:			
1-90	+	0	0
1-100	+	+	+

The phenol coefficient would be $\frac{350}{90} = 3.89$

If none of the dilutions show growth in 5 minutes and killing in 10 minutes, the hypothetical dilution may be estimated in certain cases. This may be done only when any three consecutive dilutions show the following results:

The first, no growth in 5 minutes; the second, growth in 10 minutes but not in 15 minutes; and the third, growth in 15 minutes; for example:

If the results were as follows:

Disinfectant (X):

	5 min.	10 min.	15 min.
1-300	0	0	0
1-350	+	+	0
1-400	+	+	+
Phenol:			
1-90	0	0	0
1-100	+	+	0

the estimated phenol coefficient would be

$$\frac{325}{95} = 3.42$$

To avoid giving an impression of fictitious accuracy, the phenol coefficient is calculated to the nearest 0.1 unless the coefficient is less than 1.0. Thus, in the examples cited above, the phenol coefficients would be reported as 3.9 and 3.4 instead of 3.89 and 3.42.

In the preceding description, *Eberthella typhi* has been mentioned as the test organism. Wherever any expression of phenol coefficient occurs in literature, on labels, etc., it is assumed to mean the *E. typhi* phenol coefficient, unless otherwise stated. It is, however, the distinct intention of this department not to limit the test to the use of one organism. In fact, the test has been found adaptable to the use of a wide variety of bacterial species in the determination of phenol coefficients. In cases where some of the more strictly parasitic bacteria are used, modifications in media are necessitated, and, of course, a change in the phenol dilutions. The writers are not in a position at this time to prescribe the limits of resistance for many of the organisms that might be used. Therefore discussion of the exact technic is here omitted, with the exception of that for *Staphylococcus aureus*. Suggestions for the use of certain representative types may, however, be found in a paper by Reddish (5). When any test organism other than *E. typhi* is used it should be distinctly designated when stating the phenol coefficient.

S. aureus has been found to be an extremely useful organism for testing disinfectants and antiseptics and has been used for this purpose for a number of years. When substituted in the above test the technic remains exactly the same. The phenol dilutions, however, must be changed. The resistance of any strain of *S. aureus* used in this test must come within the following limits: At 20° C. it must survive a 1-60 dilution of phenol for 5 minutes and a 1-70 dilution for 15 minutes. The following is the minimal resistance that would be acceptable:

Phenol:	5 min.	10 min.	15 min.
1-60	+	0	0
1-70	+	+	+

In the bacteriological examination of disinfectants, the *Eberthella typhi* and the *S. aureus* phenol coefficients give, in general, sufficient information to render tests with other organisms unnecessary, except in special instances. The commonly accepted criterion that disinfectants for general use be employed at a dilution equivalent to the germicidal efficiency of 5 per cent phenol against *E. typhi* (that is, 20 times the *E. typhi* phenol coefficient) allows a reasonable margin of safety for the destruction of infective agents likely to be the object of general disinfection about premises with the possible exception of *Mycobacterium tuberculosis*. *S. aureus*, due to it subiquity resistance and ever-ready tendency to cause infection, should always be employed in testing those substances recommended for personal use or as applications for wounds. If the disinfectant is recommended for use externally the temperature of the test should be 20° C., but where such substances are recommended for use in the body cavities, such as for mouth washes, gargles, douches, etc., this test should be conducted at 37° C. In such case the test should be designated "The F. D. A. method (special) *S. aureus*, 37° C." At body temperature the *S. aureus* should show the following resistance to phenol:

	5 min.	10 min.	15 min.
1-80	+	0	0
1-90	+	+	+

Or

	5 min.	10 min.	15 min.
1-80	+	0	0
1-90	+	+	0

The previous description of this method (5) differed from this only in allowing a slightly wider latitude in the resistance of the test organism against phenol.

OTHER TESTS FOR GERMICIDES[4]

THE limitations of the phenol coefficient make it necessary in some cases to judge the germicidal preparation by other tests or by additional tests. This is particularly true of preparations that are not completely soluble or miscible in water. It is also true of certain preparations designated as antiseptics.

Soluble antiseptics or antiseptics completely miscible with water can be tested, of course, by the procedure already described as the F. D. A. *Staphylococcus aureus* phenol coefficient method. In the testing of these substances, however, the phenol coefficient is not obtained necessarily, the phenol figure being used merely as a check of the resistance of the test organism. The information desired is the concentration which will kill in five minutes.

In an effort to stimulate practical conditions, it is frequently advisable to conduct the tests in the presence of blood serum. Sterile horse serum in a concentration of 10 per cent is ordinarily used, both in the germicidal and inhibitory tests. Special claims and uses of a product, however, frequently indicate the desirability of a higher concentration of this organic enrichment.

The following methods designed for the testing of insoluble and immiscible products are in use in this laboratory at the present time. Some of them have been used for years and have been described previously (6). Laboratory tests, of course, cannot duplicate the exact conditions found in practice. The procedures here outlined, however, are as close an approach to practical conditions as is feasible in routine laboratory tests, and reveal the obviously useless preparations. It should be noted that inhibitory tests are considered along with other facts in interpreting whether or not the substance will be of value in practical use. It must be remembered that not only bacteriological but physiological and pharmacological facts frequently must be taken into consideration in judging many substances.

THE WET FILTER-PAPER METHOD

The wet filter-paper method is a germicidal test rather than a test of inhibitory properties. It is used when the substance to be tested is not soluble or completely miscible with water, or for substances that are to be used in high concentration, such as soaps, tooth pastes, suppositories, dyes, dusting powders, salves, and ointments. If the substance is to be used in the body cavaties the test is carried out at 37° C.; if not, the test is carried out at 20°, or at room temperatures, and the temperature is recorded.

No. 2 Whatman filter paper is cut into pieces about 0.5 cm. square, and sterilized in a plugged test tube at temperatures below 170° C. to prevent charring. A suitable number of the paper squares are then impregnated with *Staphylococcus aureus*, or other test organisms, by immersion in a 24-hour broth culture of the organism. The culture must have the standard resistance required for phenol coefficient testing. The wet inoculated squares are then placed in the liquid or solid substance to be tested in such a way as to be completely covered and in intimate contact. At the end of 5 minutes, 10 minutes, 15 minutes, or 1 hour, or any other desired length of time, the wet papers are removed with a sterilized, stiff, platinum wire bent at a sharp angle to form a hook and placed in 10 c. c. of sterile broth. After as much of the disinfectant as possible has been removed (in the case of sticky substances, the needle must be used to aid in freeing the squares of adherent germicide) the squares are retransferred to a fresh tube of sterile broth (10 c. c.) and the tubes incubated at 37° for 48 hours, when they are observed for evidence of growth.

It will be noted that in this test resubcultures are always required, since the first tube of broth to which the filter-paper squares have been added frequently contains sufficient antiseptic to exhibit inhibition of growth. Both tubes of broth are usually incubated.

THE DRY FILTER-PAPER METHOD

The dry filter-paper method is used in tests of fumigants and of oils that are to

[4] According to current usage the word "antiseptic" has two meanings; to kill bacteria or to prevent their growth, depending upon the use of the product. Products such as salves, ointments, and dressings that remain in contact with the body for long periods of time, may be designated properly as antiseptics if they inhibit the growth of bacteria. On the other hand, mouth washes, douches, gargles, and preparations of like nature are in contact with the body for but brief periods of time and exert negligible inhibitory action. These may be described properly as antiseptics only if they will destroy bacteria under the conditions of use; that is, in the dilutions recommended and in a period of time comparable to that in which they would have an opportunity to act when used as directed.

be used where moisture is absent. It is similar to the wet filter-paper test, squares of paper being used that have been impregnated as described under the test above, except the squares are dried for two days in a sterile Petri dish in the 37° C. incubator. This test can be used successfully only with organisms capable of resisting the drying. *Eberthella typhi* will not withstand the drying. In the writers' work *Staphylococcus aureus* is the usual test organism. The inoculated dried paper squares may be used at any time after drying up to 30 days, but the resistance of the organism at no time should fall so low that it is incapable of withstanding a 1-80 dilution of phenol for five minutes at 20°. It should be noted that control tests with non-medicated squares should always be carried out to test the viability of the test organism. As in the wet filter-paper method, resubcultures are always necessary.

THE AGAR-PLATE METHOD

The agar-plate method is a test for inhibitory properties and is used for substances remaining in contact, with the body in the absence of serous body fluids. Examples of substances which may be tested by this method are salves, dusting powders, creams, plasters, pads, adhesive tape, catgut, and suppositories. The test organism ordinarily used is *Staphylococcus aureus*, but for special purposes the test may be used with any organism capable of growing on agar. The agar is of the same composition as that previously described for carrying stock cultures of the test organism.

Fifteen to twenty cubic centimeters of agar is melted and cooled to 42°-45° C. To this is added 0.1 c. c. of a 24-hour broth culture of the test organism. The inoculated agar is then poured into a sterile Petri plate and allowed to harden. As soon as the agar has hardened, the test substance is placed in intimate contact with the surface of the agar. If a salve, it is first warmed just sufficiently to soften it and thus secure a complete peripheral contact. As a control, warmed sterile petrolatum may be placed on another portion of the plate. The plates are incubated 24-48 hours under unglazed porcelain tops at 37° C. and then are examined for evidence of inhibition. If the preparation is antiseptic or inhibitory, a zone of clear agar will be noted around the place where the substance has been in contact and the width of the zone will indicate the diffusibility of the inhibitory (antiseptic) agent. If there is no inhibition, growth of the test organism will be

[6] The authors are indebted to L. C. Himebaugh for this method.

[7] In the cases where chlorine compounds are used for this purpose the effectiveness is usually judged on the basis of "available" chlorine content.

[8] Intestinal antiseptics do not readily lend themselves to laboratory tests. When medical opinion concerning the physiological and therapeutic properties of such preparations is to be confirmed by the results of bacteriological tests, the products may be considered to be germicidal only when tested in the presence of liberal amounts of organic matter, such as saliva, feces, etc.

METHOD APPLICABLE IN A GIVEN CASE

Substance	*Method Applicable*
Soluble disinfectants:	
A. Preparations for general use.	Phenol coefficient—*E. typhi* at 20° C.
B. Preparations for antiseptic use.	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as outlined.
C. Preparations for surgical use.	Phenol coefficient technic—*S. aureus* 20° C.
Insoluble and concentrated disinfectants:	
A. Preparations for general use (oils, tarry substances, powders, lime, etc.)	Wet filter paper—*E. typhi* and *S. aureus*. Room temperature.
B. Preparations for use on dry surfaces (spraying oils, sweeping compounds, powders, lime).	Dried filter paper—*S. aureus*. Room temperature.
C. Preparations for fumigation (filter paper and exposed to gas in confined space).	Wet filter paper—*E. typhi* and *S. aureus;* room temperature. Dried filter paper—*S. aureus;* room temperature. (Extension of time may be indicated).
Soluble and liquid antiseptics:	
A. Preparations to be applied for a short time (washes, mouth washes, gargles, douches, etc.).	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as indicated.
B. Preparations for use on open wounds, etc. (washes).	Phenol coefficient technic—*S. aureus* 20° C. or 37° C. as indicated (Tested in presence of 10 per cent serum.)
C. Preparations remaining on site of application (dyes, wet dressings, rubbing preparations, etc.).	Agar cup-plate.
D. Preparations for use on open wounds, etc. (dyes, wet dressings, etc.).	Serum agar cup-plate.
E. Preparations remaining on site of application but claiming germicidal properties.	Wet filter paper—*S. aureus* 37° C. Extension of time may be indicated.
Solid soluble antiseptics:	
A. Lozenges, tablets, etc.	Wet filter paper—*S. aureus* 20° C. or 37° C. as indicated. Note: Saturated aqueous solution or in dilution indicated.
Insoluble and concentrated antiseptics:	
A. Preparations remaining on site of application (dusting powders, ointments, salves, suppositories, plasters, dressings, etc.).	Agar plate.
B. Preparations remaining on site of application but claiming germicidal properties.	Wet filter paper—*S. aureus* 37° C. Extension of time may be indicated.
C. Preparations for use on open wounds, etc.	Serum agar plate.
Antiseptic materials, appliances, etc.:	
A. Bandages, dressings, catgut, etc.	Serum agar plate.
B. Tape, pads, etc.	Agar plate.
Solid and semisolid antiseptics:	
A. Preparations used for a short time (soaps, soap powders, tooth pastes, tooth powders, etc.).	Wet filter paper—*S. aureus* 20° C. or 37° C. as indicated. (Note: Undiluted and diluted with equal parts water or diluted with sufficient water to form a thick paste or heavy emulsion.)
Disinfectants and antiseptics for use in the absence of organic matter:	
A. Preparations for drinking water.[9]	Phenol coefficient technic—*E. typhi* 20° C. (Note: 0.1 c. c. of culture to 10 c. c. of diluted preparation.)
Intestinal antiseptics.[8]	

(5 c. c. of disinfectant + 95 c. c. of distilled water = solution A)

Dilution	*Solution A* C. c.		*Distilled water* C. c.		*Solution A* C. c.		*Distilled water* C. c.		*Solution A* C. c.		*Distilled water* C. c.
1:20	= 20	+	0	or	10	+	0	or	4	+	0
1:25	= 20	+	5	or	10	+	2½	or	4	+	1
1:30	= 20	+	10	or	10	+	5	or	4	+	2
1:35	= 20	+	15	or	10	+	7½	or	4	+	3
1:40	= 20	+	20	or	10	+	10	or	4	+	4

1:45	=	20	+	25	or	10	+	12½	or	4	+	5
1:50	=	20	+	30	or	10	+	15	or	4	+	6
1:55	=	20	+	35	or	10	+	17½	or	4	+	7
1:60	=	20	+	40	or	10	+	20	or	4	+	8
1:65	=	20	+	45	or	10	+	22½	or	4	+	9
1:70	=	20	+	50	or	10	+	25	or	4	+	10
1:80	=	20	+	60	or	10	+	30	or	4	+	12
1:90	=	20	+	70	or	10	+	35	or	4	+	14
1:100	=	20	+	80	or	10	+	40	or	4	+	16
1:110	=	20	+	90	or	10	+	45	or	4	+	18
1:120	=	20	+	100	or	10	+	50	or	4	+	20
1:130	=	20	+	110	or	10	+	55	or	4	+	22
1:140	=	20	+	120	or	10	+	60	or	4	+	24
1:150	=	20	+	130	or	10	+	65	or	4	+	26
1:160	=	20	+	140	or	10	+	70	or	4	+	28
1:170	=	20	+	150	or	10	+	75	or	4	+	30
1:180	=	20	+	160	or	10	+	80	or	4	+	32
1:200	=	20	+	180	or	10	+	90	or	4	+	36
1:200	=	20	+	180	or	4	+	36	or	2	+	18
1:225	=	20	+	205	or	4	+	41	or	2	+	20½
1:250	=	20	+	230	or	4	+	46	or	2	+	23
1:275	=	20	+	255	or	4	+	51	or	2	+	25½
1:300	=	20	+	280	or	4	+	56	or	2	+	28
1:325	=	20	+	305	or	4	+	61	or	2	+	30½
1:350	=	20	+	330	or	4	+	66	or	2	+	33
1:375	=	20	+	355	or	4	+	71	or	2	+	35½
1:400	=	20	+	380	or	4	+	76	or	2	+	38
1:450	=	20	+	430	or	4	+	86	or	2	+	43
1:500	=	20	+	480	or	4	+	96	or	2	+	48

(1 c. c. of disinfectant + 99 c. c. of distilled water = solution B)

Dilution	*Solution B* C. c.		*Distilled water* C. c.		*Solution B* C. c.		*Distilled water* C. c.		*Solution B* C. c.		*Distilled water* C. c.
1:100	= 100	+	0	or	10	+	0	or			
1:100	= 100	+	10	or	10	+	1	or			
1:120	= 100	+	20	or	10	+	2	or			
1:130	= 100	+	30	or	10	+	3	or			
1:140	= 100	+	40	or	10	+	4	or			
1:150	= 100	+	50	or	10	+	5	or			
1:160	= 100	+	60	or	10	+	6	or			
1:180	= 100	+	80	or	10	+	8	or			
1:200	= 100	+	100	or	10	+	10	or	4	+	4
1:225	= 100	+	125	or	10	+	12½	or	4	+	5
1:250	= 100	+	150	or	10	+	15	or	4	+	6
1:275	= 100	+	175	or	10	+	17½	or	4	+	7
1:300	= 100	+	200	or	10	+	20	or	4	+	8
1:325	= 100	+	225	or	10	+	22½	or	4	+	9
1:350	= 100	+	250	or	10	+	25	or	4	+	10
1:375	= 100	+	275	or	10	+	27½	or	4	+	11
1:400	= 100	+	300	or	10	+	30	or	4	+	12
1:400	= 10	+	30	or	4	+	12	or	2	+	6
1:450	= 10	+	35	or	4	+	14	or	2	+	7
1:500	= 10	+	40	or	4	+	16	or	2	+	8
1:550	= 10	+	45	or	4	+	18	or	2	+	9
1:600	= 10	+	50	or	4	+	20	or	2	+	10
1:650	= 10	+	55	or	4	+	22	or	2	+	11
1:700	= 10	+	60	or	4	+	24	or	2	+	12
1:750	= 10	+	65	or	4	+	26	or	2	+	13
1:800	= 10	+	70	or	4	+	28	or	2	+	14
1:850	= 10	+	75	or	4	+	30	or	2	+	15
1:900	= 10	+	80	or	4	+	32	or	2	+	16
1:900	= 5	+	40	or	4	+	32	or	2	+	16
1:1,000	= 5	+	45	or	4	+	36	or	2	+	18
1:1,100	= 5	+	50	or	4	+	40	or	2	+	20
1:1,200	= 5	+	55	or	4	+	44	or	2	+	22
1:1,300	= 5	+	60	or	4	+	48	or	2	+	24
1:1,400	= 5	+	65	or	4	+	52	or	2	+	26
1:1,500	= 5	+	70	or	4	+	56	or	2	+	28
1:1,600	= 5	+	75	or	4	+	60	or	2	+	30
1:1,700	= 5	+	80	or	4	+	64	or	2	+	32
1:1,800	= 5	+	85	or	4	+	68	or	2	+	34
1:2,000	= 5	+	95	or	4	+	76	or	2	+	38
1:2,200	= 5	+	105	or	4	+	84	or	2	+	42
1:2,400	= 5	+	115	or	4	+	92	or	2	+	46
1:2,600	= 5	+	125	or	4	+	100	or	2	+	50
1:2,800	= 5	+	135	or	4	+	108	or	2	+	54
1:3,000	= 5	+	145	or	4	+	116	or	2	+	58
1:3,200	= 5	+	155	or	4	+	124	or	2	+	62

observed adjacent to and even under the test substance.

THE SERUM AGAR-PLATE METHOD

Preparations recommended for use on open wounds, cuts, etc., will be effective only if they exhibit activity in the presence of serous fluids. In testing such preparations the agar-plate method is modified by the addition of 10 per cent sterile horse serum to the agar.

THE AGAR CUP-PLATE METHOD[3]

The agar cup-plate method is merely a variation of the agar-plate method. It is to be used on products liquid at the temperature of the test. The agar or serum agar is inoculated as in the agar-plate method. Before the agar cools, a depression or cup is made in the medium by standing a sterile flat-bottomed glass tube, 1.5 cm. in diameter, in the liquefied agar. On hardening, the glass tube is removed by slightly twisting and pulling at the same time. Insertion of a sterile wire down the side of the tube for the introduction of air will eliminate much of the cracking of the agar. Another method of preparing the agar cup-plate is to allow the medium to harden and then cut out a disk in the agar, by means of a cork borer, 1.5 cm. in diameter. One or two drops of melted agar are placed in the cup to seal cracks or crevices. After the agar cup-plate is prepared, 6 drops of the liquid to be tested are placed in the cup and the plate incubated under an unglazed porcelain top for 24 to 48 hours. If there is a clear zone about the cup, the substance under test has inhibitory properties. Here, as well as in the agar-plate test, the agar in the clear zone may be tested for growth by subculture in broth to indicate whether the action is germicidal or merely inhibitory.

TESTS IN THE PRESENCE OF ORGANIC MATTER

In general, the tests outlined above will take care of the bulk of the preparations coming to this laboratory. However, special tests may be required to determine the value of products recommended for certain purposes. For instance, recommendations on the label may make advisable the use of various additions of organic matter, such as increased amounts of peptone or the addition of gelatin, blood ascitic fluid, saliva, urine, or feces, depending upon the information desired.

LITERATURE CITED

(1) Bergey, D. H., assisted by Harrison, F. C., Breed, R. S., Hammer, B. W., and Huntoon, F. M. 1930. Manual of Determinative Bacteriology; A Key for the Identification of Organisms of the Class Schizomycetes. Ed. 3, 589 p. Baltimore.

(2) Brewer, C. M., and Reddish, G. F. 1929. A Comparison of the Hygienic Laboratory Test with the Method Used by the Department of Agriculture for

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Peet-Grady Method

*Official Method of The National Assn. Insecticide & Disinfectant Mfrs. for Evaluating Liquid Household Insecticides**

TWO official biological methods are available for the determination of the effectiveness of household insecticides. The Peet-Grady Method was adopted as an official test in 1932 and has since been improved in minor details, all improvements having been officially accepted after satisfactory trials. The Large Group Modification of the Peet-Grady Method was officially adopted in December, 1938. Although employing the Peet-Grady chamber as the basis of the test, the procedure is sufficiently unlike the original Peet-Grady Method to warrant the name, Large Group Peet-Grady Method to distinguish it from the regular or Small Group Peet-Grady Method requiring small groups of flies as test units.

Both methods are being used extensively; and if correctly performed, evaluations by either test may be expected to be in reasonable agreement. The two methods are designed to evaluate liquid sprays in conjunction with the Official Test Insecticide as the basis of comparison.

THE LARGE GROUP PEET-GRADY METHOD

I. SCOPE

This method of test is a means of determining the relative efficiency of contact liquid insecticides used in the form of a spray. As a biological test, it is subject to variations which accompany the reaction of living organisms and should be employed under the supervision of a person familiar with the biological testing of insecticides. In order to measure with reasonable tolerances the relative position of different insecticides, the test is designed to be used in conjunction with the "Official Test Insecticide" as the basis of comparison. The outstanding feature of the method is the use of representative 500-fly test units having uniform sex ratios, prepared while the flies are in the pupal stage.

II. APPARATUS

A. Rearing Room

This room may be of any convenient size constructed so as to be free from strong drafts, separate from the testing room, and maintained at a temperature between 80 and 85 degrees Fahrenheit with a range in relative humidity between 40 and 70 per cent. It should be separate from the testing room in order to minimize the possibility of traces of insecticide coming in contact with the test insects prior to the test.

B. Testing Room

This room may be of any convenient size capable of holding the standard Peet-Grady Test Chamber and permitting adequate additional space for the operator to handle the test efficiently. While conducting tests this room shall be maintained at a temperature and humidity similar to that employed in the Peet-Grady chamber. Since the exhaust fan of the Chamber will remove relatively large quantities of air, the air inlet to this room should be constructed to permit air of approximately the specified temperature and humidity to enter the room.

C. Peet-Grady Test Chamber

The Test Chamber shall be constructed of wood or metal and lined so the inner surface is smooth and relatively non-porous. The Chamber must be externally braced and the inside must be free of cracks. projections, ledges, etc. The Chamber shall be a 6-ft. cube by internal measurements, with a tolerance of plus or minus 1 in. for any dimension. One wall shall contain a tight fitting door large enough for a man to enter conveniently, with the interior side flush with the wall when closed. One or more of the walls, or the ceiling, may contain an observation window. In the center of the ceiling a glass window, 18 in. square, with a 200 watt light bulb set 6 in. above it in a reflector, is provided for illumination. Opposite the entrance and above the observation windows a wire covered (10 mesh screening) air duct exit shall be provided to permit the ventilation of the chamber after a test. The four lower corners of the Chamber shall contain a 6 x 6 in. square port covered with wire gauze and provided with tight fitting hatches. Each wall shall have two 1 in. holes 6 in. from the ceiling and 1 ft. from the nearest corner, fitted with corks, to permit the introduction of the insecticide. The interior of the chamber is to be painted with a white enamel insoluble in petroleum distillate.

D. Fly Cages

One type of cage is used. It has a floor area approximately 1 ft. square and may be from 8 to 12 in. in height. The floor of the cage is preferably detachable to facilitate cleaning the cages and inserting a paper floor covering. The cages are constructed of wood and 16 mesh wire screening and are fitted with a sleeve opening.

E. Atomizer

The atomizer used shall be the special one constructed by the DeVilbiss Company for the N.A.I.D.M.

* These methods are not designed for the evaluation of semi-concentrate type sprays, except on a dilution basis.

Standardization Committee and obtainable from that company by referring to "special atomizer for Peet-Grady Insecticide Test — DeVilbiss Special No. 5004." The sprayer shall be operated with air maintained at a constant pressure of 12.5 plus or minus 0.5 lb. per sq. in. which must be free of oil, dust particles, or condensed moisture.

F. Apparatus for Picking Up Flies

Any convenient means of picking up the paralyzed flies without handling or appreciably disturbing them may be used. A vacuum device providing gentle suction and a sufficiently large receptacle to prevent crowding of the flies is recommended.

G. Exhaust Fan

An exhaust fan capable of moving not less than 1000 cu. ft. of air per min. is used to ventilate the chamber after each test. It shall be arranged with adequate piping to exhaust the chamber vapors outside of the building.

H. Test Insect

For evaluation purposes, the house fly (Musca domestica, L.) is used. Healthy test groups having an average age of not less than 4 nor more than 6 days are to be used. Individual flies in the test groups shall not be less than 3 nor more than 7 days old at the time of testing. The strain shall be of such susceptibility that the O.T.I. will cause a mortality of from 30 to 55 per cent.

I. Reference Insecticide

The primary reference insecticide used in this test for evaluating the unknown shall be called the current Official Test Insecticide (O.T.I.) and shall be prepared by the National Association of Insecticide and Disinfectant Manufacturers, Inc., each year. Secondary reference insecticides of greater strength, standardized for toxicity against the O.T.I. may be employed in conjunction with the O.T.I. when rating samples of high toxicity.

J. Insecticide Paper

The paper used on the chamber floor shall be specified as 60 or 70 lb. weight basis, gray bogus wrapping paper, in 36 or 40 in. widths. A new paper surface shall be exposed for each test.

III. PROCEDURE

A. Raising and Handling of Flies

Three culture jars are prepared by filling cylindrical battery jars measuring approximately 6 in. in diameter by 9 in. high, three quarters full of the synthetic medium prepared as follows:

For 3 jars:

1200 g. soft wheat bran (coarse)
600 g. alfalfa meal

Mix together thoroughly, place in jars, and then add to each jar 900 cc. of a suspension consisting of:

2700 ml. water (lukewarm)
50 ml. malt extract
30 g. compressed yeast

Mix the suspension throughout the bran-alfalfa to give a loose mixture. The proportion of liquid ingredients to dry ingredients may be varied slightly to prevent mold growth.

Eggs are deposited in the food dishes of cages containing 4 and 5 day old flies. About 2000 eggs or sufficient to give 1500 to 1800 flies per jar are transferred from the moist cotton to the jars after the medium has been mixed. The number of eggs to use may be determined by gently shaking the eggs in water for a minute, allowing them to settle out and then estimating volumetrically from a calibrated tube. One-tenth ml. of settled eggs contains about 500 eggs.

On the eighth day after preparation, most larvae should have migrated to the top inch of medium and transformed into pupae. On the ninth or tenth day the pupae are separated from the medium by lifting off the top ½ in. of the medium in each jar, loosening the exposed pupae, and then pouring the pupae with adhering particles of medium on a cafeteria tray. The pupae-medium mixture from each of the three jars is combined and then placed in a fan blast until it is of such dryness that the fan blast will effect a clean separation of the pupae and medium when the mixture is sprinkled over an inclined tray placed in the air stream.

The separated pupae are weighed into groups of approximately 500, and each group is placed in a shallow dish which is in turn placed in a cage. In this manner a series of eight or ten approximately uniform test units may be obtained from each culture. The series of test units is then kept for 5 days after peak emergence or until the second day of oviposition (usually the 15th day after the culture was prepared), each cage being supplied each morning with a 4-oz. dish containing 3 oz. of a 50 per cent dilution of milk with water, together with sufficient absorbent cotton to prevent flies from drowning. Water or other foods should not be used as certain foods have been found to affect both oviposition and susceptibility to the spray. On the day of testing the flies should be fed at least 3 hr. before spraying begins.

B. Test Procedure

On the second day of oviposition the series of cages from one culture are ready for testing. All flies in one cage are transferred to the thoroughly cleaned Peet-Grady chamber, the floor of which is covered with the specified gray bogus wrapping paper. All ports and entrances are closed, the windows are equally shaded, and a total of 12 ml. of insecticide is applied at 12.5 lb. pressure in approximately equal quantities through each spray hole, the atomizer being swung horizontally to distribute the spray to all parts of the chamber. The chamber is kept closed at an inside temperature of 85°±2° for 10 min. from the time the spraying is started. At the end of 10 min. the ports are opened and the chamber is ventilated while the flies are being picked up.

The paralyzed flies are picked up and transferred immediately to the same cage from which they were taken, the cage having been wiped out with a damp cloth and supplied with a new paper floor covering during the 10-min. exposure period.

During the subsequent 24-hr. recovery period, the cage is placed in the rearing room and supplied with a gauze wrapped ball of cotton saturated with 10 per cent sugar solution.

The few unparalyzed flies in the chamber at the end of the 10-min. exposure period are counted and removed.

Before the next cage of flies is liberated for the second test, the chamber walls are wiped with a clean cloth saturated with rubbing alcohol containing 10 per cent acetone, and a new paper floor surface is exposed by turning or replacing the paper.

C. Assembling the Data

At the end of 24 hr. plus or minus 1 hr., the dead flies are removed from the cage and counted. Only flies that show no signs of life upon being touched may be counted as dead. The alive flies are killed by placing the cage in an oven at 170°F. for a few minutes; they are then removed and counted. The record of unparalyzed flies, dead flies, and alive flies gives the total flies in the test unit. The mortality is the percentage dead flies of total flies. Likewise, the knockdown is the percentage paralyzed flies of total flies.

IV. CONDITIONS FOR OFFICIAL EVALUATION

1. The tests shall be conducted in accordance with the procedure previously described.

2. An unknown insecticide to be officially rated should yield a knockdown not lower than the knockdown of the O.T.I. with a tolerance of (—) 2 percentage points.

3. Cages showing a natural mortality greater than 5 per cent on the day scheduled for testing shall not be used.

4. Evaluation of an unknown shall be based on the average difference between mortalities obtained with the O.T.I. and with the unknown sample, as determined by one comparison on each of three cultures. Each culture used in determining the evaluation must show an O.T.I. kill falling between 30 and 55 per cent. Replicated O.T.I. tests on one culture shall agree within 10 points.

5. The following example illustrates the order of testing and the computation of the evaluation:—
The order of testing shall be more or less random. The O.T.I. shall be replicated within each culture with the random order restricted to the first two and the last two tests in any series.

Culture	*E*		*F*		*G*	
Date	11/21		11/22		11/23	
Cage No.	*Sample*	*% Dead*	*Sample*	*% Dead*	*Sample*	*% Dead*
1	O.T.I.	36	Unknown B	55	O.T.I.	40
2	Unknown A	42	O.T.I.	46	Unknown F	54
3	Unknown C	32	Unknown C	32	Unknown E	58
4	Unknown B	50	Unknown F	55	Unknown A	46
5	Unknown E	65	Unknown A	46	Unknown C	30
6	Unknown D	55	Unknown D	60	Unknown D	58
7	Unknown F	48	Unknown E	70	O.T.I.	38
8	O.T.I.	36	O.T.I.	44	Unknown B	55

	Culture Mortalities	*Average*	*Rating*	*Grade*
O.T.I.	36, 45, 39	40		
Unknown A	42, 46, 46	44.7	+ 4.7	B
Unknown B	50, 55, 55	53.3	+13.3	A
Unknown C	32, 32, 30	31.3	— 8.7	Below B
Unknown D	55, 60, 58	57.7	+17.7	AA
Unknown E	65, 70, 58	64.3	+24.3	AA
Unknown F	48, 55, 54	52.3	+12.3	A

THE SMALL GROUP PEET-GRADY METHOD

I. SCOPE

This method of test is a means of determining the relative efficiency of contact liquid insecticides used in the form of a spray. As a biological test, it is subject to variations which accompany the reaction of living organisms and should be employed under the supervision of a person familiar with the biological testing of insecticides. In order to measure with reasonable tolerances the relative position of different insecticides, the test is designed to be used in conjunction with the "Official Test Insecticide" as the basis of comparison. In this method the insecticides are tested against lots of 100 flies liberated from a stock cage. Ten paired tests of known and unknown samples are required to compensate certain biological variables.

II. APPARATUS

A. Rearing Room...
B. Testing Room.....
C. Peet-Grady Test Chamber.

} As described under these sections of the Large Group Peet-Grady Method

D. Fly Cages

Two types of fly cages known as stock cages and observation cages are required. The stock cages may be of any convenient dimensions providing a volume of approximately 1½ cu. ft. Each cage shall have a solid floor, a large sliding glass door, and preferably shall be equipped with a sleeve opening. The top and two sides of the cage shall be covered with 16 mesh wire screening.

Not more than 1500 flies shall be confined per cubic foot of cage volume.

The observation cages shall be in the shape of an 8-in. cube. They shall have a solid floor, a sliding glass front, and the top and two sides shall be of 16 mesh wire screening. The back panel may be provided with a suitable aperture for inserting the hand into the cage. Rubber sheets with 2¾ in. openings fitted with fruit jar caps are recommended for the back panels.

E. Atomizer.....
F. Apparatus for Picking Up Flies.....
G. Exhaust Fan.....
H. Test Insect.....
I. Reference Insecticide.....
J. Insecticide Paper.....

} As described under these sections of the Large Group Peet-Grady Method

III. PROCEDURE

A. Raising and Handling of Flies

Three culture jars are prepared by filling cylindrical battery jars measuring approximately 6 in. in diameter by 9 in. high, three quarters full of the synthetic medium prepared as follows:

For 3 jars:

1200 g. soft wheat bran (coarse)
600 g. alfalfa meal

Mix together thoroughly, place in jars, and then add to each jar 900 cc. of a suspension consisting of:

2700 ml. water (lukewarm)
50 ml. malt extract
30 g. compressed yeast

Mix the suspension throughout the bran-alfalfa to give a loose mixture. The proportion of liquid ingredients to dry ingredients may be varied slightly to prevent mold growth.

Horse manure with added water, malt, and yeast may also be used as the rearing medium. The manure, which must be fresh, is preferably pasteurized for 2 hr. at 160-165°F. After the manure is cooled, it is shredded by means of an ice crusher, placed in battery jars and packed down, leaving the jars about two-thirds full. A malt and yeast suspension as described above is then added to the manure. The volume of suspension added may vary, but should be such as to maintain a slight excess of liquid in the bottom of the jar with a thin dry layer of medium on the top at the time of pupation.

The eggs used with either medium are deposited in the food dishes of cages containing flies between 4 and 7 days old and should be kept moist until placed in the culture jars. About 2000 eggs or sufficient to give 1500 to 1800 flies per jar are transferred from the moist cotton to the jars and placed about an inch below the surface of the medium within a few hours after the medium has been mixed. The number of eggs to use may be determined by gently shaking the eggs in water for a minute, allowing them to settle out and then estimating volumetrically from a calibrated tube. One-tenth ml. of settled eggs contains about 500 eggs.

When emergence starts, usually on the tenth day following preparation of the culture, any convenient means may be used for transferring the flies to the stock cages. Screen cones to fit the jars are recommended to conduct the insects directly into cages. As the males tend to emerge first and the females last, the middle two-thirds of the emergence is used to make up a stock cage. As an alternative procedure, the stock cage may be made up of the first and last equal portions of emergence from adjacent cultures that emerge on the same day. Approximately 1500 flies are placed in one cage.

The stock cages are held for 5 days, or until the first day of oviposition, at the temperature and humidity conditions prescribed for the rearing room. Each cage is supplied each morning with a 6-oz. dish containing 5 oz. of a 50 per cent dilution of milk with water, together with sufficient absorbent cotton to prevent flies from drowning. Water or other foods should not be used as certain foods have been found to affect both oviposition and susceptibility to the spray. On the day of testing the flies should be fed at least 3 hr. before spraying begins.

B. Test Procedure

When of proper age a group of approximately 100 flies from the stock cage is liberated in the thoroughly cleaned Peet-Grady chamber, the floor of which is covered with the specified gray bogus wrapping paper. All ports and entrances are closed, the windows are equally shaded, and a total of 12 ml. of insecticide is applied at 12.5 lb. pressure in approximately equal quantities through each spray hole, the atomizer being swung horizontally to distribute the spray to all parts of the chamber. The chamber is kept closed at an inside temperature of 85°±2° for 10 min. from the time spraying is started. At the end of 10 min. the ports are opened and the chamber is ventilated while the flies are being picked up and counted. The paralyzed flies are then transferred to the observation cage placed in the rearing room, supplied with a gauze wrapped ball of cotton saturated with 10 per cent sugar solution, and left for 24 hr.

The few unparalyzed flies in the chamber at the end of the 10-min. exposure period are counted and removed.

Before the next lot of 100 flies is liberated for the second test, the chamber walls are wiped with a clean cloth saturated with rubbing alcohol containing 10 per cent acetone, and a new paper floor surface is exposed by turning or replacing the paper.

C. Assembling the Data

At the end of the 10-min. exposure period, the number of paralyzed flies and unparalyzed flies is recorded. Twenty-four hours plus or minus 1 hr. later the dead flies are counted while in the observation cage. Only flies that show no signs of life upon being disturbed may be counted as dead. The mortality is the percentage dead flies of total flies. Likewise, the knockdown is the percentage paralyzed flies of total flies.

IV. CONDITIONS FOR OFFICIAL EVALUATION

1. The tests shall be conducted in accordance with the procedure previously described.

2. An unknown insecticide to be officially rated should yield a knockdown not lower than the knockdown of the O.T.I. with a tolerance of (—) 2 percentage points.

3. The average mortality for the O.T.I. in any series of tests shall lie between 30 and 55 per cent kill. It is desirable to have the O.T.I. kill between 35 and 45 per cent of the flies.

4. No more than two unknowns may be tested in conjunction with the O.T.I. in any one series. Ten tests of the O.T.I. and of each of the unknowns shall be made in parallel; i.e., test each sample of the series the same number of times with flies of the same batch, and test every sample of the series the same number of times during any one day. The three samples in a series should be

randomized in order of testing. For example, 1, 2, 3; 2, 3, 1; 3, 1, 2; etc., until thirty tests have been made. When only one unknown and the O.T.I. comprise the series, the order should likewise be randomized. For example, 1, 2; 2, 1; 2, 1; 1, 2; etc. until twenty tests have been completed. The groups of two or three samples should be run successively on 100 fly lots from a given stock cage. Nearly all flies in the cage should be used, the cage being discarded only when there are not sufficient flies left to test another group of two or three samples. As the males are usually liberated first, these provisions tend to equalize the numbers of each sex used.

5. The standard error the mean difference between the average O.T.I. kill and the average unknown kill must be less than 3. (See example under paragraph 6.) If it is 3 or greater, the differences between pairs were too variable and to make the results valid additional paired tests must be run to bring the standard error of the mean difference down to 3 or lower.

6. Calculate the mean difference between kill obtained with the unknown and that obtained with the O.T.I. Denote the difference between kills by the appropriate grade according to letter:—

Grade AA—excellent +16 or higher
Grade A—good +6 to +15
Grade B—equal to O.T.I. —5 to +5

7. The following example illustrates the arrangement of tests and calculations described in the preceding paragraphs. When two unknowns and the O.T.I. are tested in series, the first table should consist of differences between No. 1 and the O.T.I., the second table should show differences between unknown No. 2 and the O.T.I. The method of calculation is shown in the sample below:

Mean difference equals 7.0; Standard error of MD =

$$\frac{\sqrt{\frac{\text{Sum d}}{n-1}}}{\sqrt{n}} = \frac{\sqrt{\frac{180}{9}}}{3.16} = 1.42$$

1.42 is less than 3, thus indicating the test has been properly conducted.

The letter n (in formula above) denotes the number of paired tests. This number is always 10 except when it is necessary to run additional tests to bring the standard error of the mean difference down to 3 or less.

The unknown in the example above tests 7 points better than the O.T.I.; therefore, unknown No. 1 is an "A" grade insecticide.

Pair	*Date*	*Batch*	*Unknown No. 1 % Kill*	*O.T.I. % Kill*	*Difference*	*Deviation from Mean Difference*	*Deviation Squared*
1	12/8	12/3	58	49	+9	+2	4
2	12/8	12/3	62	50	+12	+5	25
3	12/8	12/3	50	47	+3	—4	16
4	12/9	12/4	52	46	+6	—1	1
5	12/9	12/4	60	52	+8	+1	1
6	12/9	12/4	65	50	+15	+8	64
7	12/10	12/5	54	48	+6	—1	1
8	12/10	12/5	56	57	—1	—8	64
9	12/10	12/5	51	44	+7	+0	0
10	12/10	12/5	57	52	+5	—2	4
			56.5M	49.5M	7.0MD	0	180 sum d²

F.D.A. Method

(*From Page* 183)

Testing Disinfectants. Jour. Bact. 17:44.

(3) Giltner, W. 1926. Laboratory Manual in General Microbiology. Ed. 3. rev., 492 p., illus. New York.

(4) Moore, Q. 1926. Note on the Testing of Disinfectants by the Rideal-Walker Method. Jour. Soc. Chem. Indus. Trans. 45 (53); T472-474T.

(5) Reddish, G. F. 1927. Examination of Disinfectants. Amer. Jour. Pub. Health 17; 320-329.

(6) ——— 1929. Methods of Testing Antiseptics. Jour. Lab. and Clin. Med. 14; 649-658, illus.

(7) Rideal, S., and Walker, J. T. A. 1921. Approved Technique of the Rideal-Walker Test. 12 p. London.

(8) Shippen, L. P. 1928. A Fallacy in the Standard Methods of Examining Disinfectants. Amer. Jour. Pub. Health 18; 1231-1234.

(9) Sutton, F. 1924. A Systematic Handbook of Volumetric Analysis; or, The Quantitative Determination of Chemical Substances by Measure, Applied to Liquids, Solids, and Gases, Adapted to the Requirements of Pure Chemical Research, Pathological Chemistry, Pharmacy, Metallurgy, Manufacturing Chemistry, Photography, etc., and for the Valuation of Substances Used in Commerce, Agriculture, and the Arts. Ed. 11, rev. throughout by W. L. Sutton and A. E. Johnson. 629 p., illus. Philadelphia.

(10) United States Pharmacopoeial Convention, Committee on Revision. (1925). The Pharmacopeia of the United States of America. By authority of the United States Pharmacopeial Convention held at Washington, D. C., May 11, 1920. Official from January 1, 1926. Decennial Rev. 10 (U. S. P. X.), 626 p., illus. Philadelphia.

((11) United States Public Health Service. 1921. Disinfectant Testing by the Hygienic Laboratory Method. Pub. Health Rpts. (U. S.) 36 (27); 1559-1564. (Also Reprint 675.)

(12) Wright, J. H. 1917. The Importance of Uniform Culture Media in the Bacteriological Examination of Disinfectants. Jour. Bact. 2; 315-346, illus.

Gnadinger-Corl Method

for Evaluation of Pyrethrum Flowers

Reagents. 1. Petroleum ether, 90-99 per cent distilling between 20 and 40°; maximum boiling point, 60°. Petroleum ether which does not meet these specifications should not be used.

2. Aldehyde-Free Alcohol. — Allow 95 per cent alcohol, containing 5 g. of *m*-phenylenediamine hydrochloride per liter, to stand for twenty-four hours with frequent shaking. Boil under a reflux condenser for at least eight hours, allow to stand overnight and distil, rejecting the first 10 per cent of distillate and the last 5 per cent of solution. Store in a dark place in well-filled bottles, tightly corked.

3. Basic Lead Acetate Solution — Dissolve 20 g. of Horne's basic lead acetate in sufficient recently boiled water to make 1 liter.

4. Alkaline Copper Solution.—Dissolve 2.500 g. of purest copper sulfate, $CuSO_4.5H_2O$, in about 100 c.c. of water, warming gently; cool when dissolved. Dissolve 5.000 g. of highest purity sodium potassium tartrate and 7.500 g. of purest sodium hydroxide (at least 96 per cent NaOH) separately in about 100 c.c. of cold water. Transfer the solutions to a 500-c.c. volumetric flask, mix and dilute to the mark. This solution should not be used after it is three days old.

5. Folin's Reagent. — Dissolve 150 g. of sodium molybdate, $Na_2MoO_4.2H_2O$, in 300 cc. of water. Filter through a 15-cm. quantitative filter paper into a 1-liter flask and wash with 75 cc. of water. Add 0.1 to 0.2 cc of bromine and shake until the bromine is dissolved. Let stand for one hour, then add with shaking 225 cc. of 85 per cent phosphoric acid. Add 150 cc. of sulfuric acid (1 vol. of concentrated acid mixed with 3 vols. of water and cooled). Remove the liberated bromine by means of a moderately rapid current of air; the aeration requires about half an hour. Finally add 75 cc. of 99 per cent acetic acid, mix and dilute to a volume of 1 liter.

6. Standard Dextrose Solution. — Dissolve exactly 1 g. of pure anhydrous dextrose, accurately weighed, in water and transfer to a 200-c.c. volumetric flask. Add 40 c.c. of aldehyde-free alcohol, mix and dilute to 200 c.c. with water. Transfer 10 c.c. of this solution to a 250-c.c. volumetric flask by means of a pipet, add 210 c.c. of aldehyde-free alcohol and dilute to 250 c.c. with water. Ten c.c. of this solution contains 2 mg. of dextrose. The strong dextrose solution is stable for months; the dilute solution should be made fresh each week.

Apparatus. 1. Constant-temperature water bath, set at 78°, corrected, and controlled within ± 0.2°. An oil bath should not be used instead of a water bath.

2. Colorimeter of Duboscq or Klett type, preferably with artificial illuminator.

3. Folin sugar tubes, blown to contain 15.5 cc. to base of constriction. When heated to 78° the surface of the liquid must fall between points A and B. The internal diameter of the constricted portion should be the same for all tubes in a set.

Determination.—Extract 15 g. of ground Pyrethrum flowers (about 30-mesh) for five hours with petroleum ether in a Soxhlet extractor. For samples very low in pyrethrins 20 g. may be used and for high test samples 10 g. are sufficient. Cool the petroleum ether solution which should measure less than 100 c.c. to about 20° and let stand for at least half an hour or allow to stand overnight at room temperature. Filter through a quantitative filter paper into a 400-cc. beaker, add a few grains of ignited sand and evaporate at a temperature not exceeding 75°. As soon as the last traces of petroleum ether are driven off, transfer the residue immediately with five or six portions of boiling 95 per cent aldehyde-free alcohol to a 100-cc. volumetric flask (previously marked at the 80-cc. point), using sufficient boiling alcohol to make the volume 80-85 cc. To the hot solution add from a pipet 15 cc. of basic lead acetate solution and make to the mark with hot alcohol. Shake vigorously, cool at once to 20° and again make to the mark with alcohol. Filter and to the filtrate add about 1 g. of anhydrous sodium carbonate. Let stand for ten to fifteen minutes, shaking frequently, and filter. Immediately pipet 10 cc. of the clear filtrate into a Folin tube and add, also from a pipet, 6 cc. of alkaline copper solution. Mix thoroughly, keeping the solution in the bulb of the tube. Measure 10 cc. of standard dextrose solution (2 mg. of dextrose) with a pipet into a second tube and add 6 cc. of copper solution. Place the tubes upright in the constant-temperature bath, set at 78° corrected, and heat for exactly forty-five minutes. Remove from the bath and place in water at 20° for three minutes. Add 10 cc. of Folin's reagent from a pipet and let stand for three minutes; then stopper the tubes, mix thoroughly, transfer to 100 cc. volumetric flasks and make to the mark with water. Filter through a Gooch crucible fitted with a heavy asbestos pad, using gentle suction. and discard the first 10 to 20 c.c. Do not use filter paper. The dextrose solution need not be filtered. Compare the solutions at once in the colorimeter and from the readings calculate the dextrose equivalent to the unknown solution in the usual way. Reference to the third column of Table I will give the amount of pyrethrins, in milligrams, in the unknown solution, or milligrams of pyrethrins in one-tenth of the weight of flowers taken for extraction. The following example shows the method of calculation:

Weight of flowers taken	15 g.
Colorimetric reading of standard dextrose	20 mm.
Colorimetric reading of unknown	24 mm.
Dextrose equivalent to unknown $\frac{20\times 2}{24}$, or	1.667 mg.
Pyrethrins equivalent to dextrose	11.01 mg.

Aliquot of flowers taken, $15\times \frac{10}{100}$ or 1.5 g.

Pyrethrins in 1.5 g. = 11.01 mg., or 0.734 per cent.

In making the color comparisons the standard dextrose is set at 20 mm. The unknown will then read between 14 and 50 mm., for quantities between 23 and 5 mg. of pyrethrins. If the reading is less than 12 mm., the entire amount of copper may have been reduced, and the determination should be repeated using a smaller aliquot. It is also desirable, if the reading is more than 40 mm., to run a duplicate determination using 40 g. of flowers.

Before making comparisons it is advisable to be sure that the colorimeter is not out of adjustment. This is easily done by filling both colorimeter cups with the blue solu-

Table I

Copper Reducing Power of Dextrose and Pyrethrins*

Dextrose, mg.	Pyrethrin I, mg.	Pyrethrin I and II, mg.	Dextrose, mg.	Pyrethrin I, mg.	Pyrethrin I and II, mg.	Dextrose, mg.	Pyrethrin I, mg.	Pyrethrin I and II, mg.
0.750	4.87	5.19	1.475	9.07	9.68	2.200	14.31	15.26
.775	5.01	5.34	1.500	9.23	9.85	2.225	14.52	15.49
.800	5.14	5.48	1.525	9.39	10.02	2.250	14.73	15.71
.825	5.28	5.63	1.550	9.55	10.19	2.275	14.95	15.94
.850	5.41	5.77	1.575	9.72	10.37	2.300	15.17	16.18
.875	5.55	5.92	1.600	9.88	10.54	2.325	15.40	16.42
.900	5.69	6.07	1.625	10.04	10.71	2.350	15.62	16.66
.925	5.82	6.21	1.650	10.21	10.89	2.375	15.85	16.91
.950	5.96	6.36	1.675	10.38	11.07	2.400	16.09	17.16
.975	6.10	6.51	1.700	10.55	11.25	2.425	16.33	17.42
1.000	6.24	6.66	1.725	10.72	11.43	2.450	16.57	17.68
1.025	6.38	6.81	1.750	10.89	11.62	2.475	16.81	17.93
1.050	6.52	6.95	1.775	11.07	11.81	2.500	17.05	18.19
1.075	6.67	7.11	1.800	11.24	11.99	2.525	17.31	18.46
1.100	6.81	7.26	1.825	11.42	12.18	2.550	17.58	18.75
1.125	6.95	7.41	1.850	11.60	12.37	2.575	17.85	19.04
1.150	7.10	7.57	1.875	11.78	12.57	2.600	18.11	19.32
1.175	7.25	7.73	1.900	11.96	12.76	2.625	18.38	19.61
1.200	7.39	7.88	1.925	12.15	12.96	2.650	18.67	19.91
1.225	7.54	8.04	1.950	12.33	13.15	2.675	18.95	20.21
1.250	7.69	8.20	1.975	12.52	13.35	2.700	19.25	20.53
1.275	7.84	8.36	2.000	12.71	13.56	2.725	19.56	20.86
1.300	7.99	8.52	2.025	12.90	13.76	2.750	19.86	21.18
1.325	8.14	8.68	2.050	13.10	13.97	2.775	20.20	21.55
1.350	8.29	8.84	2.075	13.30	14.19	2.800	20.55	21.92
1.375	8.44	9.00	2.100	13.49	14.39	2.825	20.89	22.28
1.400	8.60	9.17	2.125	13.69	14.60	2.850	21.24	22.65
1.425	8.76	9.34	2.150	13.90	14.82	2.875	21.59	23.03
1.450	8.92	9.51	2.175	14.11	15.05			

*Third column calculated for a mixture of equal parts of pyrethrins I and II.

tion from the standard dextrose and setting them at the 20 mm. mark. If the instrument is properly adjusted the colors will, of course, match. If the lighting is uneven, or if air bubbles collect on the tips of the plungers, the colors will not be the same. An air bubble on the tip of a plunger may cause an error of 2 mm.; the solution will have a grayish color. After adjusting the instrument so that the colors match, when the dextrose standard is placed in both cups and set at 20 mm., leave the left cup in position, remove the right cup, rinse it several times with the unknown solution, fill and read; remove the right cup to be sure no air bubbles are trapped on the plunger tip and repeat the reading.

When assaying freshly harvested flowers, difficulty is sometimes experienced in obtaining a clear filtrate of the alcoholic solution which has been clarified with lead acetate. The slight cloudiness of the filtrate does not affect the accuracy of the results. In such cases 2 g. of anhydrous sodium carbonate should be used to remove the excess of lead.

Blank determinations should be run on every new lot of reagents. No difficulty was experienced in obtaining blanks equivalent to 0.05 mg. of dextrose, and for this reason no correction for the blank was made in calculating Table I. Reagents that yield a blank equivalent to more than 0.10 mg. of dextrose should be rejected. High blanks may be due to impurities in any of the reagents, but the sodium potassium tartrate, sodium molybdate and aldehyde-free alcohol especially should be carefully tested. If the blank is between 0.05 and 0.10 mg. of dextrose, when compared with the standard dextrose solution, the error due to the blank is negligible.

The petroleum ether extract should not be heated longer than necessary to drive off the solvent. Generally only 5 or 10 minutes' heating above 60° will be required if the petroleum ether meets the specifications given.

The proportion of alcohol and water in the contents of the Folin tubes is carefully adjusted; if more alcohol is used the copper salts will be precipitated; if the percentage of water is increased the pyrethrins will be thrown out of solution. In either case incorrect results will be obtained. The Folin tubes should be dried before using and the measurements should be made with pipets. Smaller aliquots than 10 cc. can be used for a determination, but sufficient aldehyde-free alcohol (80.5 per cent) must be added to the tube to make the total volume of the pyrethrin solution 10 cc. Larger aliquots than 10 cc. cannot be used.

It is essential that the bath be maintained at 78° corrected, ±0.2°, and a stirrer must be provided to insure even temperature and circulation around the tubes, which should be immersed to a depth of 8 to 10 cm. Variations in time of heating or in temperature will yield results that are not comparable with Table I.

(*Turn to Page* 176)

Table II

Determination of Pyrethrin Content of Flowers and Stems

No.	Description of sample	Pyrethrins, %
7	Pyrethrum flowers, 1928 crop	0.40
6	Pyrethrum flowers, 1927 crop	.43
13	Pyrethrum flowers, 1925 crop	.44
21	Pyrethrum flowers, 1925 crop	.45
16	Pyrethrum flowers, 1925 crop	.47
14	Pyrethrum flowers, 1925 crop	.53
4	Pyrethrum flowers, 1927 crop	.56
11	Pyrethrum flowers, 1925 crop	.57
5	Pyrethrum flowers	.59
3	Pyrethrum flowers, 1928 crop	.80
2	Pyrethrum flowers, 1926 crop	0.87
20	Pyrethrum flowers, 1928 crop	.94
19	Pyrethrum flowers, 1928 crop	1.10
17	Pyrethrum flowers, 1928 crop	1.17
18	Pyrethrum flowers, 1928 crop	1.20
1	Pyrethrum flowers, 1928 crop	1.21
8	Dalmatian stems, 6 years old	0.00
9	Spanish stems, 1927 crop	.04
15	Dalmatian stems	.04
22	Daisy flowers, 3 years old	.00

Rotenone Determination

*Crystallization Method**

WEIGH 30 g. (if sample contains more than 7% rotenone use a quantity that will give 1.0-1.5 g. of rotenone in the 200 cc. aliquot) of finely powdered root and 10 g. of decolorizing carbon into 500 cc. glass-stoppered Erlenmeyer flask. Add 300 cc. of chloroform measured at definite room temperature; place flask on shaking machine and fasten stoppers securely. Agitate vigorously for not less than four hours, preferably interrupting shaking with overnight rest (or flask may be shaken continuously overnight). Remove flask from machine and allow to cool in refrigerator for at least an hour. Filter mixture rapidly into suitable flask, using fluted paper without suction and keeping funnel covered with watch glass to avoid loss from evaporation. Stopper flask and adjust temperature of filtrate to that of original chloroform.

Transfer exactly 200 cc. of this solution to 500 cc. Pyrex Erlenmeyer flask and distil until only about 25 cc. remains in flask. Transfer extract to 125 cc. Erlenmeyer flask, using carbon tetrachloride to rinse out the 500 cc. flask. Evaporate almost to dryness on steam bath in current of air. Then remove remainder of solvent under reduced pressure, heating cautiously on steam bath when necessary to hasten evaporation. (Suction may be applied directly to flask). Dissolve extract in 15 cc. of hot carbon tetrachloride and again, in a similar manner, remove all solvent. Repeat with another 10-15 cc. portion of hot carbon tetrachloride. (This treatment removes all chloroform from the resins. The chloroform extract is usually completely soluble in carbon tetrachloride. If small quantities of insoluble material are present, the purification procedure described later will eliminate them. However, if large quantity of insoluble residue should remain when extract is dissolved in first portion of carbon tetrachloride, it should be filtered off and thoroughly washed with further portions of hot solvent, after which the filtered solution plus washings should be treated as directed above for removal of chloroform).

Add exactly 25 cc. of carbon tetrachloride and heat gently to completely dissolve extract. Cool flask in ice bath for several minutes and seed with a few crystals of rotenone-carbon tetrachloride solvate if necessary. Stopper flask and swirl until crystallization is apparent. If at this stage only a small quantity of crystalline material separates, add an accurately weighed quantity of pure rotenone estimated to be sufficient to assure that final result, expressed as pure rotenone, is at least one g. Then warm to effect complete solution, and again induce crystallization. At same time prepare saturated solution of rotenone in carbon tetrachloride for washing. Place flasks containing extract and washing solution in ice bath capable of maintaining temperature of 0° C. and allow to remain overnight.

After 17-18 hours in ice bath, rapidly filter extract through weighed Gooch crucible fitted with disc of filter paper, removing flask from ice bath only long enough to pour each fraction of extract into crucible. Rinse residue of crystalline material from flask and wash under suction with sufficient of ice-cold saturated solution (usually 10-12 cc.) to remove excess mother liquor. Allow crucible to remain under suction for about 5 minutes and then dry to constant weight at 40° C. (which usually requires about an hour). The weight obtained is "crude rotenone-carbon tetrachloride solvate."

Break up contents of crucible with spatula, mix thoroughly, and weigh 1 g. into 50 cc. Erlenmeyer flask. Add 10 cc. of alcohol that has previously been saturated with rotenone at room temperature, swirl flask a few minutes, stopper tightly, and set aside at least four hours, preferably overnight, at the same temperature. Filter on weighed Gooch crucible fitted with disc of filter paper. Rinse crystals from flask and wash under suction with solution of ethyl alcohol saturated with rotenone at temperature of recrystallization. (About 10 cc. will usually be required). Allow crucible to remain under suction 3 to 5 minutes and then dry at 105° C. to constant weight, which should be effected in one hour.

Multiply weight expressed in grams by weight of the "crude rotenone-carbon tetrachloride solvate" and to product add 0.07 g., which represents correction for rotenone held in solution in the 25 cc. of carbon tetrachloride used in crystallization. If any pure rotenone has been added, subtract its weight from value obtained. This gives the weight of pure rotenone contained in the aliquot of the extract, representing 20 grams of the sample.

Alternate extraction procedure—

If sample is one in which ratio of rotenone to total extract is greater than 40%, use quantity sufficient to contain 1.0-1.5 g. of rotenone and

(*Turn to Page* 196)

* Jones, H. A. & Graham, J. J. T., Ind. & Eng. Chem., Anal. Ed., 10, 19, 1938. Jones, H. A. & Graham, J. J. T., J Assoc. Official Agr. Chemists, 21, 148, 1938. Graham, J. J. T., J. Assoc. Official Agr. Chemists, 22, 408, 1939.

The Seil Method

*for Estimation of Pyrethrins**

ALTHOUGH many attempts had been made to determine the active ingredients of pyrethrum, none were successful until Staudinger and Ruzicka[1] reported the results of their thorough investigation in 1924. These authors proved that Pyrethrin I and Pyrthrin II were the active principles of pyrethrum, and established their chemical constitution. They established the fact that the pyrethrins were esters of the same ketonic alcohol pyrethrolon combined with two different acids. Pyrethrin I was the pyrethrolon ester of chrysanthemum monocarboxylic acid and Pyrethrin II the pyrethrolon ester of chrysanthemum dicarboxylic acid.

Several methods for the estimation of the pyrethrins have been published. These can be divided into three classes:

1. Methods depending on the reducing properties of the pyrethrolon.

2. Methods depending on the ketonic group in the pyrethrolon.

3. Methods based on the acids combined with the pyrethrolon.

It is evident that methods falling into classes 1 and 2 can determine only the total pyrethrins present, while those in class 3, by determining both acids, give the amounts of Pyrethrin I and Pyrethrin II present.

The methods of Gnadinger and Corl,[6] and Martin asd Tattersfield[7] fall into class 1, since both depend on the reducing power of pyrethrolon. Staudinger and Harder,[8] and Tattersfield, Hobson and Gimingham[9] developed semicarbazone methods which fall into class 2, since they depend on the ketone group of pyrethrolon. The acid methods of Staudinger and Harder, and Tattersfield, Hobson and Gimingham fall into class 3 and differentiate the pyrethrins.

If both the pyrethrins were equally toxic, it would be immaterial which method was used for assay, provided it was accurate. However, Staudinger and Ruzicka reported Pyrethrin I to be more toxic than Pyrethrin II; Tattersfield and Hobson[2] stated that Pyrethrin I is ten times as toxic as Pyrethrin II; Wilcoxson and Hartzell[3] also state that Pyrethrin I is decidedly more toxic than Pyrethrin II; Wilson,[4] based on the figures for the concentrations of Pyrethrins I and II and the corresponding kill reported by Wilcoxson and Hartzell, mathematically calculated the relative toxicities of the pyrethrins and reported that Pyrethrin II has a toxicity of only about 7 per cent of that of Pyrethrin I; Gnadinger and Corl[5] found that Pyrethrin II possesses about 80 per cent the toxicity of Pyrethrin I.

Since the pyrethrins differ markedly in their relative toxicity, an analysis giving the total pyrethrins is not sufficient to give the true activity of a sample. For example, if two samples of pyrethrum flowers assay one per cent total pyrethrins, with sample "A" containing 0.40 per cent Pyrethrin I and 0.60 per cent Pyrethrin II, and sample "B" containing 0.46 per cent Pyrethrin I and 0.54 per cent Pyrethrin II, using Wilson's figures we find that sample "B" is 12 per cent stronger than sample "A." The Pyrethrin I content of the flowers gives a better index of their toxicity than total pyrethrins. From the Pyrethrin I content of both flowers, sample "B" is 11.5 per cent stronger than sample "A."

The proposed method is an improvement on the acid methods of Staudinger and Harder, and that of Tattersfield. The time required for an analysis is much shorter, and no special equipment is required. After the flowers have been extracted with petroleum ether, the solvent is evaporated, the residue is saponified with N/2 Ethyl alcoholic NaOH for 1 to 2 hours. After saponification is complete, the alcoholic solution is transferred to a beaker, and the alcohol removed by boiling. Since the pyrethrin acids are not precipitated with Barium Hydroxide, the fats, resins and inert material are removed by precipitation with Barium Chloride. In an aliquot of the filtrate the monocarboxylic acid is determined substantially as in the Tattersfield Method. The Dicarboxylic acid is determined by direct extraction with ether from a saturated salt solution, eliminating the mechanical extraction with ether, saving at least 19 hours in time.

The Method

METHOD—12.5 g. of 20-30 mesh powdered flowers are extracted in a Soxhlet extractor with low boiling petroleum ether. After the extraction is complete, cool and filter; the petroleum ether is recovered on a water bath. 10 to 15 c.c. of N/2 ethyl alcoholic NaOH is added and the mixture is refluxed for 1 to 2 hours. The alkaline alcoholic solution is transferred to a 600 c.c. beaker, the flask washed with water,

* Based on paper read before 20th Annual Meeting, Natl. Assn. Insecticide & Disinfectant Mfrs., New York, Dec., 1933.

and sufficient water is added to bring the volume of liquid in the beaker to 200 c.c. A few glass beads are added and the alcohol is removed by boiling, care being taken to avoid boiling over due to the soap formed by the saponification. When the volume has been reduced to 150 c.c. the solution is cooled and transferred to a 250 c.c. standard flask, to which about 1 g. of filter-cel has been previously added. The solution is thoroughly mixed to distribute the filter-cel, then 10 c.c. of 10 per cent Barium Chloride Solution is added, made up to the mark with water and thoroughly mixed. After the precipitate has settled, filter through a fluted paper. Transfer 200 c.c. of the clear filtrate to 500 c.c. Erlenmeyer flask, add 1 c.c. of conc-sulphuric acid which precipitates the excess Barium and liberates the chrysanthemum acids. Distil with steam, using a distillation trap and an efficient condenser. Receive the distillate in a 500 c.c. Squibb separatory funnel and distil until the liquid in the flask is between 15 and 20 c.c. The amount in the separatory funnel is usually 250 c.c. Allow the flask containing the dicarboxylic acid to cool.

To the separatory funnel add 50 c.c. of neutral petroleum ether, and shake thoroughly for one minute. After the liquids have separated, draw off the aqueous layer into a second 500 c.c. separatory funnel to which a second 50 c.c. of neutral petroleum ether has been added. Shake for one minute and after the liquids have separated, discard the aqueous layer. Wash the petroleum ether in the first separatory funnel with 10 c.c. of water using the same wash water for the petroleum ether in the second funnel. Repeat with a second wash water of 10 c.c. as before. Combine the petroleum ether extracts. Neutralize 15 c.c. of water containing 1 drop of phenolphthalein indicator solution with N/50 NaOH and add it to the combined petroleum ether solutions and titrate with N/50 NaOH, shaking after each addition until the aqueous layer is just pink. Each c.c. of N/50 NaOH consumed is equal to .0066 g. of Pyrethrin I. The 200 c.c. aliquot taken corresponds to 10 g. of sample. Therefore the number of c.c. consumed times .066 gives the percentage of Pyrethrin I.

The solution containing the dicarboxylic acid is filtered through a gooch crucible. The flask is washed with a litle water. The clear filtrate is made alkaline with Bicarbonate of soda and transferred to a separatory funnel. It is washed twice with chloroform. Washing the first chloroform extract with water, using the same wash water for the second chloroform wash. Combine the aqueous solutions, acidify strongly with hydrochloric acid, saturate with salt, and extract with 50 c.c. of ether, shaking for about 1 minute. Repeat the extractions with three more portions of ether, using 50 c.c. for the second and 25 c.c. each for the third and fourth extractions. Wash the ether of the first extraction with 10 c.c. of water as before. Repeat with a second wash with 10 c.c. of water as before. Combine the ether solutions. Tap off any water separating, and filter into a flask. Recover the ether on a water bath and dry the residue at 100° C. for 10 minutes. Add 2 c.c. of neutral alcohol, warm gently, then add 20 c.c. of distilled water and heat to dissolve the acid. If a residue remains undissolved, cool and filter through a gooch crucible. Add a drop of phenolphthalein indicator solution and titrate with N/50 NaOH of which 1 c.c. is equivalent to .00374 Pyrethrin II.

Method for Kerosene Extracts

VOLLMAR[10] suggested a method for determining Pyrethrin I in kerosene extracts containing no perfumes. The method just outlined can be applied to kerosene sprays. If the spray contains a perfume which may contain esters which will interfere with the estimation of the pyrethrum acids, the perfume can be removed as follows: 100 c.c. of the ordinary household extract, or less of a concentrate, is placed in a 500 c.c. flask with 50 c.c. of water. The flask is heated and steam passed through until the distillate has no perfume odor. The contents of the flask is cooled and transferred to a separatory funnel, the liquids are allowed to separate and the water tapped off into a second separatory funnel, and washed with 25 c.c. of kerosene. The oil in the first funnel is transferred to a 250 c.c. Erlenmeyer flask. The first funnel is washed with the kerosene in the second, which is then added to the flask. 20 c.c. of N/2 Ethyl. Alcoholic NaOH is added and refluxed on a hot plate for 1 to 2 hours. It is then transferred to a 600 c.c. beaker, washing the flask with water, finally adding enough water to make the aqueous layer measure 200 c.c. A few beads are added and the solution boiled until the aqueous layer is 150 c.c. After cooling, the solution is transferred to a 500 c.c. separatory funnel and the kerosene separated. The alkaline aqueous solution is tapped into a 250 c.c. flask. The kerosene is washed once with 10 c.c. of water which is also added to the flask. One gram of filter-cel is added and an excess of 10 per cent Barium Chloride solution, usually 10 c.c. is sufficient. From this point proceed as in the method previously outlined.

If the spray under analysis is not perfumed, 100 c.c. is saponified directly with the alcoholic NaOH, without steam distillation.

Reactions of Chrysanthemum Carboxylic Acids

THE aqueous solutions remaining after the titration of both the acids can be used directly for the qualitative tests. If desired, the alcohol can be removed by boiling. After cooling and rendering just acid with acetic acid, and adding a little filter-cel, the phenolphthalein can be removed by filtration through a gooch crucible. With the usual reagents, the acids give the following reaction: (*See table on following page.*)

The most characteristic reaction of the chrysanthemum mono carboxylic acid is that with Deniges

Reagent	Mono Acid		Di Acid	
10% Solution	Cold	Hot	Cold	Hot
$CaCl_2$	—	—	—	—
$BaCl_2$	—	—	—	—
$AgNO_3$	—	—	—	—
$AgNO_3 + NH_4OH$	—	—	—	—
$ZnCl_2$	—	—	—	—
$Pb(C_2H_3O_2)_2$	+	+	+	+
$CuSO_4$	+	+	+	+
$FeCl_3$	+	+	+	+
$HgCl_2$	—	Reduction	—	Reduction
Fehling Solution	—	—	—	—
K Mn O_4	Reduction	Reduction	Reduction	Reduction
Br_2	Absorbed		Absorbed	

Reagent, the mercury sulphate reagent of the U. S. P. X.

If an excess of the reagent is added to an aqueous solution of the acid, a faint pink color appears at once, which gradually deepens until similar to an alkaline phenolphthalein color. The color changes to a blue red, then purple and then blue and finally a blue with a bronze tint. On further standing greenish shades develop with the formation of a yellow brown precipitate. These changes are hastened by heating to 60° C.

On boiling a brownish precipitate forms. On filtration the solution contains mercurous salts which is shown by the precipitation of calomel on the addition of hydrochloric acid. This reaction will detect 0.5 mg. in a volume of 10 c.c.

The dicarboxylic acid gives no color changes with the mercury reagent but on long standing or by heating deposits a precipitate similar to that of the mono acid. The filtrate from the precipitate contains mercurous mercury.

TYPICAL ANALYSES

Pyrethrin I.	Pyrethrin II.	Total
FLOWERS		
0.48%	0.60%	1.08%
0.49%	0.54%	1.03%
0.41%	0.49%	.90%
0.40%	0.51%	.91%
0.38%	0.53%	.91%
0.40%	0.59%	.99%
0.30%	0.39%	.69%
0.24%	0.35%	.57%
0.29%	0.37%	.66%
0.46%	0.59%	1.05%
0.50%	0.40%	.90%
0.32%	0.43%	.75%
0.17%	0.24%	.41%
0.04%	0.05%	.09%
EXTRACTS grams per 100 c.c.:		
0.12	.126	.246
0.57	.80	1.37
2.20	2.45	4.65
1.38	1.38	2.76
.05	.058	.108
.065	.085	.15

References

[1] Staudinger and Ruzicka — Helv. Chim. Acta. 7, 177-201; 201-211; 212-235; 236-244; 245-259; 377-390; 406-441; 442-448; 448-458. 1924.

[2] Tattersfield and Hobson—J. Agr. Sci. 19, 433-437. 1929.

[3] Wilcoxson and Hartzell — Contrib. Boyce Thompson Institute. 5, No. 1, 115-127. 1933.

[4] Wilson—Soap—September—84. 1933.

[5] Gnadinger and Corl—J. Am. Chem. Soc. 52, 684-8, 1930.

[6] Gnadinger and Corl—J. Am. Chem. Soc. 51, 3054-64. 1929.

[7] Martin and Tattersfield—J. Agr. Sci. 21, 115-135. 1931.

[8] Staudinger and Harder—Ann. Acad. Sci. Fennicae—A. 29, No. 18, 1-14. 1927.

[9] Tattersfield, Hobson and Gimingham —J. Agr. Sci. 19, 266-296. 1931.

[10] Vollmar — Ind. Eng. Chem., Anal. Ed. 3, 110-2. 1931.

Water Hardness Statistics

Approximate Average Hardness (as $CaCO_3$) of Larger Public Water Supplies in the United States, 1932

Place	Population supplied (thousands)	Hardness (parts per million)
Akron, Ohio	225	*100
Atlanta, Ga.	270	14
Baltimore, Md.	805	54
Birmingham, Ala.	305	*67
Boston, Mass. (Met. Dist.)	1,385	15
Bridgeport, Conn.	185	15
Buffalo, N. Y.	573	118
Chicago, Ill.	3,679	125
Cincinnati, Ohio	451	*110
Cleveland, Ohio	1,200	120
Columbus, Ohio	291	*84
Dallas, Tex.	260	*69
Dayton, Ohio	201	368
Denver, Colo.	288	*121
Detroit, Mich.	1,798	97
Flint, Mich.	156	*298
Grand Rapids, Mich.	169	*123
Hartford, Conn.	208	17
Houston, Tex.	292	**85
Indianapolis, Ind.	364	
White River		280
Wells		316
Jersey City, N. J.	404	55
Kansas City, Mo.	419	*221
Los Angeles, Calif.	1,238	
Owens River		*140
Los Angeles River		*205
Louisville, Ky.	308	*110
Memphis, Tenn.	253	39
Milwaukee, Wis.	652	126
Minneapolis, Minn.	464	*172
Nashville, Tenn.	154	*80
Newark, N. J.	1,045	29
Pequannock Supply Wanaque Res. (No. Jersey Dis.)		50
New Haven, Conn.	242	
Lake Whitney		69
Lake Dawson		22
Lake Gaillard		48
New Orleans, La.	450	*72
New York, N. Y.	6,930	
Catskill suply		20
Croton supply		51
Ridgewood supply.		*70
Oakland, Calif.	457	**70
Okla. City, Okla.	185	*121
Omaha, Neb.	214	*251
Philadelphia, Pa.	1,951	
Delaware River		69
Schuylkill River		*120
Phila, Suburban District Pa.	315	62
Pittsburgh, Pa.	985	*90
Portland, Ore.	302	8
Providence, R. I.	314	32
Richmond, Va.	183	*56
Rochester, N. Y.	382	
Hemlock Lake		75
Lake Ontario		105
St. Louis, Mo.	822	*83
St. Paul, Minn.	272	160
San Antonio, Tex.	232	221
San Francisco, Calif.	634	**150
Scranton, Pa.	214	**30
Seattle, Wash.	366	21
Syracuse, N. Y.	209	113
Toledo, Ohio	291	*253
Washington, D. C.	503	*93
Worcester, Mass.	195	11
Youngstown, Ohio	186	81
Total	35,048	

*Varies over a wide range. **Estimated.

Mercury Reduction Method

for Determination of Pyrethrin I

Wilcoxon-Holaday

Reagents

(a) Deniges Reagent: Mix 5 g. of yellow mercuric oxide with 40 c.c. of water and while stirring slowly add 20 c.c. of sulfuric acid; then add another 40 c.c. portion of water and stir until completely dissolved. Test for absence of mercurous mercury by adding a few drops of (b) to 10 c.c. and titrating with (c) as directed under determination.

(b) Iodine Monochloride Solution: Dissolve 10 g. of potassium iodide and 6.44 g. of potassium iodate in 75 c.c. of water; add 75 c.c. of hydrochloric acid and 5 c.c. of chloroform in a glass-stoppered bottle and adjust to faint iodine color (in chloroform) by adding dilute potassium iodide or potassium iodate solution. If there is much iodine set free, use a stronger solution of KIO_3 than 0.01 molar at first, making final adjustment with 0.01 molar solution. Keep in dark cupboard and readjust when necessary.

(c) Standard Potassium Iodate Solution: 0.01 Molar: Dissolve 2.14 g. of pure potassium iodate, previously dried at 105° C., in water and dilute to 1 liter. One c.c. of this solution is equivalent to 0.0044 g. of Pyrethrin I, and needs no further standardization.

Determination

Extract a quantity of sample that will contain from 20 to 75 mg. of Pyrethrin I (12.5-20.0 g.) in a Soxhlet or other efficient extraction apparatus 7 hours with petroleum ether, and evaporate petroleum ether on water bath heating no longer than necessary to remove solvent. Do not pass current of air through flask during evaporation.

Add 15-20 c.c. of 0.5 *N* alcoholic sodium hydroxide solution to flask containing pyrethrum extract, connect to reflux condenser and heat on steam bath or electric hot plate 1 to 1.5 hours. Transfer to 600 c.c. beaker and add sufficient water to bring the volume to 200 c.c. Add a few glass beads, or preferably use boiling tube, and boil down to 150 c.c. Transfer to 250 c.c. volumetric flask, add 1 g. of filter-cel and 10 c.c. of 10 per cent barium chloride solution. Do not shake before making to volume. Make to volume, mix thoroughly, filter off 200 c.c., neutralize with sulfuric acid (1 + 4) and add 1 c.c. in excess, using 1 drop of phenolphthalein as indicator. (If necessary to have solution stand overnight at this point, it should be left in alkaline condition.) Filter through a 7 cm. filter paper that has been coated lightly with suspension of filter-cel in water, and wash several times with water on Buchner funnel. Transfer into 500 c.c. separatory funnel and extract with two 50 c.c. portions of petroleum ether. Wash extracts with two or three 10 c.c. portions of water, discard washings, and filter petroleum ether extract through plug of cotton into clean 250 c.c. separatory funnel. Wash cotton with 5 c.c. of petroleum ether. Extract petroleum ether with 5 c.c. of 0.1 *N* sodium hydroxide, shaking vigorously. Draw off aqueous layer into 100 c.c. beaker, wash petroleum ether with 5 c.c. of water or with an additional 5 c.c. of 0.1 *N* sodium hydroxide, and add this to the beaker. Add 10 c.c. of Deniges' reagent to beaker and let stand one hour. Add 20 c.c. of alcohol to beaker and precipitate reduced mercury sulfate with 3 c.c. of saturated sodium chloride solution. Warm to about 60°, filter through a small filter paper, and wash with 10 c.c. or more of hot alcohol, transferring all precipitate to the filter paper. Wash with two or more 10 c.c. portions of hot chloroform, and place filter paper and contents in 250 c.c. glass-stoppered Erlenmeyer flask. Add 30 c.c. of concentrated hydrochloric acid and 20 c.c. of water to the flask and cool; add 6 c.c. of chloroform or carbon tetrachloride and 1 c.c. of iodine monochloride solution and titrate with the iodate solution shaking vigorously after each addition until there is no iodine color in chloroform layer. From the number of c.c. of the standard iodate solution used in the titration calculate percentage of Pyrethrin I in the sample.

Potassium iodate reacts with mercurous mercury to form mercuric mercury and iodine. Further addition of iodate in presence of hydrochloric acid oxidizes iodine to iodine monochloride.

1. $5HgCl + 6HCl + KIO_3 = I + 5HgCl_2 + KCl + 3H_2O$
2. $2I_2 + KIO_3 + 6HCl = 5ICl + KCl + 3H_2O$

(Combining 1 and 2 gives the following equation)

3. $4HgCl + KIO_3 + 6HCl = 4HgCl_2 + ICl + KCl + 3H_2O$

Addition of iodine monochloride does not change volume relationships between mercurous mercury and iodate solution and aids in determining the end-point in the titration of small quantities of mercury. The end-point is taken when red color disappears from chloroform layer. The end-point is not permanent. Therefore titration should be completed

rapidly with vigorous shaking after each addition of iodate.

Pyrethrin II

Filter if necessary aqueous residue from the petroleum ether extraction in the determination of Pyrethrin I by the mercury reduction method, through a Gooch crucible. Concentrate the filtrate to about 50 c.c., transfer to a separatory funnel and make alkaline with sodium bicarbonate. Extract twice with chloroform and wash the chloroform extract through about 15 c.c. of water in each of two separatory funnels. Combine aqueous solution and washings, acidify strongly with hydrochloric acid (use about 8 c.c.), saturate with sodium chloride, adding cautiously at first to prevent excessive ebullition of carbon dioxide, and extract with 50 c.c. of ethyl ether. Draw off aqueous layer into a second separatory funnel and extract again with 50 c.c. of ether. Continue this extraction and drawing off aqueous layer using 35 c.c. for third and fourth extractions. Wash the four ether extracts successively with 10 c.c. of water, and repeat with second successive washing with another 10 c.c. of water. Combine ether solutions, draw off any water that separates and filter through a plug of cotton into 500 c.c. Erlenmeyer flask. Evaporate ether on water bath and dry residue at 100° C. for 10 minutes. Add 2 c.c. of neutral alcohol and 20 c.c. of distilled water and heat to dissolve acid. Cool, filter through a Gooch crucible, add drop or two of phenolphthalein indicator solution and titrate with 0.02 *N* sodium hydroxide solution, of which 1 c.c. is equivalent to .00374 g. of Pyrethrin II.

PYRETHRUM EXTRACT IN MINERAL OIL

Reagents

—See Pyrethrum Powder

Determination

Weigh or measure a quantity of sample that will contain 20-75 mg. of Pyrethrin I, and transfer into 300 c.c. Erlenmeyer flask. Add 20 c.c. or more if necessary of normal alcoholic NaOH solution to the flask containing the pyrethrum extract, connect to reflux condenser, and heat on steam bath or electric hot plate 1-1.5 hours. Transfer to 600 c.c. beaker and add sufficient water to make aqueous layer to 200 c.c. If more than 20 c.c. of alcoholic soda has been used, add sufficient water so that all alcohol will be removed when the volume has been reduced to 150 c.c. Add a few glass beads, or preferably use a boiling tube, and boil the aqueous layer down to 150 c.c. Transfer the contents of the beaker to a 500 c.c. separatory funnel and draw off the aqueous layer into a 250 c.c. volumetric flask. Wash the oil layer once with water and add the wash water to the aqueous portion. After drawing off the aqueous layer and washings, if a slight emulsion still persists, it may be broken by addition of 2-3 c.c. of 10 per cent barium chloride solution. Do not shake vigorously after adding the barium chloride, otherwise a reversed emulsion that is difficult to separate may be formed. To the aqueous solution in the 250 c.c. flask, add 1 g. of filter-cel and 10 c.c. or more of 10 per cent barium chloride solution. Do not shake before making to volume. Make to volume, mix thoroughly and filter off 200 c.c. Test filtrate with barium chloride to see if sufficient has been added to obtain a clear solution. Neutralize with sulfuric acid (1 + 4) and add 1 c.c. in excess, using one drop of phenolphthalein as indicator. From this point, proceed as directed under Pyrethrum powder for determination of Pyrethrin I.

NOTE: Chrysanthemum monocarboxylic acid reacts with Deniges' reagent to form a series of colors beginning with phenolphthalein red, which gradually changes to purple, then blue and finally bluish green. The color reaction is very distinct with 5 mg. of monocarboxylic acid and quantities as low as 1 mg. can usually be detected. Therefore no Pyrethrin I should be reported if the color reaction is negative.

When analyzing samples containing much perfume or other saponifiable ingredients such as thiocyanates, it may be necessary to use as much as 50 c.c. of normal alcoholic NaOH.

Rotenone Determination

(*From Page* 191)

successively extract four times with $CHCl_3$, using 200 cc. each for second to fourth extractions. Filter after each extraction and return marc to flask for extraction with fresh solvent. Finally combine extracts, evaporate almost to dryness, and proceed as directed above, beginning at point where aliquot has been evaporated almost to dryness.

Remarks:

Both chloroform and carbon tetrachloride should be of reasonably high purity and entirely free of water and acid.

The saturated solution of rotenone in carbon tetrachloride may be prepared by adding excess of rotenone, warming to effect solution and then keeping at 0° C. in ice bath overnight and filtering immediately before using; or by dissolving 0.27 g. of pure rotenone in 100 cc. of carbon tetrachloride and then cooling to 0° C. for use.

In very hot weather it is advisable to weigh flasks and contents at beginning of extraction and again before filtering. If there is appreciable loss, the original weight should be restored by the addition of chloroform before contents of flask are filtered. It is also advisable in hot weather to cool crucibles in refrigerator immediately before use.

A suitable crystallizing bath may be made by enclosing a covered pan in a carton or box and insulating with excelsior or other packing material. In use, flasks are placed in pan and surrounded with cracked ice. The assembly should be of such size that it can be placed in refrigerator.

Total Ether Extract in Derris or Cube Root

Extract 5 g. of finely powdered root in a Soxhlet or other efficient extraction apparatus with ethyl ether for 48 hours. After extraction, concentrate extract and filter off any insoluble material that may be present. Receive filtrate in tared beaker, evaporate off ether on steam bath, and dry in oven at 105° C. to constant weight.

Factory Consumption of Primary Animal and Vegetable Fats and Oils, By Class of Products, Calendar Year 1941

(Quantities in thousands of pounds)

KIND	TOTAL	Shortening	Oleomargarine	Other Edible Products	Soap	Paint and Varnish	Linoleum and Oilcloth	Printing Inks	Miscellaneous Products	Loss (including oil in foots)
TOTAL	5,860,742	1,418,109	294,912	534,637	2,143,857	570,802	136,840	29,319	543,615	188,651
Cottonseed oil	1,443,602	888,733	149,991	311,569	3,010	196	.....	153	4,106	85,844
Peanut oil	114,300	81,905	2,209	18,102	597	.....	.....	.....	5,112	6,375
Coconut oil	637,970	22,069	29,786	54,156	484,124	919	.....	1	8,639	38,276
Corn oil	84,342	62	628	62,963	4,948	848	1	34	2,776	12,082
Soybean oil	463,686	215,967	75,634	47,976	24,737	41,594	7,666	255	23,445	26,412
Olive oil, edible	2,484	.....	.....	2,308	84	.....	.....	.....	92	.....
Olive oil, inedible	2,697	.....	.....	.....	555	4	.....	.....	2,138	.....
Sulphur oil or olive foots	10,618	.....	.....	.....	10,029	.....	.....	.....	589	.....
Palm-kernel oil	10,364	4	957	6,916	1,113	.....	.....	.....	70	1,304
Palm oil	278,487	86,486	4,991	1,670	129,871	.....	.....	1	*43,768	11,700
Babassu oil	38,977	.....	946	6,677	29,753	.....	.....	.....	54	1,547
Sesame oil	887	226	.....	293	304	.....	.....	.....	45	19
Rapeseed oil	12,054	.....	.....	.....	5	103	.....	.....	11,928	18
Linseed oil	539,362	.....	.....	.....	2,278	373,745	110,236	23,547	28,423	1,133
Tung oil	54,008	.....	.....	.....	.....	48,825	1,896	2,960	327	.....
Perilla oil	7,024	.....	.....	.....	.....	5,408	340	831	445	.....
Castor oil	89,920	.....	.....	.....	1,976	44,240	1,295	760	41,643	6
Other vegetable oils	23,723	93	.....	3,524	1,162	13,690	723	89	3,912	530
Rendered pork fat	49,641	45,550	.....	3,979	1	.....	.....	.....	.....	111
Lard	18,606	5,237	8,298	4,724	88	.....	.....	13	37	209
Edible animal stearin	31,473	23,103	3,057	4,817	70	.....	.....	.....	391	35
Oleo oil	20,408	1,282	18,415	77	189	.....	.....	.....	433	12
Tallow, edible	53,001	41,227	.....	4,886	4,826	.....	.....	4	1,936	122
Tallow, inedible	1,190,542	.....	.....	.....	1,057,303	364	1	10	131,364	1,500
Grease	470,214	.....	.....	.....	310,487	150	.....	472	157,991	1,114
Neat's-foot oil	7,224	.....	.....	.....	35	37	.....	.....	7,139	13
Marine mammal oils	18,097	.....	.....	.....	6,889	26	.....	10	11,172	.....
Fish oils	187,031	6,165	.....	.....	69,423	40,653	14,682	179	55,640	289

*Includes 42,059 thousand pounds consumed by the tin and terne plate industry.

Fat and Oil Consumption

By The American Soap Industry 1934-1941

Fats and Oils	1934 (1000 lb.)	1935 (1000 lb.)	1936 (1000 lb.)	1937 (1000 lb.)	1938 (1000 lb.)	1939 (1000 lb.)	1940 (1000 lb.)	1941 (1000 lb.)
Tallow	662,858	663,002	660,020	613,509	702,267	785,041	786,456	1,057,303
Coconut oil	341,124	229,711	307,376	252,241	342,982	388,912	396,857	484,124
Palm oil	154,704	87,311	78,453	141,358	91,642	102,146	84,934	129,871
Grease	142,782	98,086	98,714	94,247	96,356	120,856	256,886	310,487
Fish oils	64,548	109,970	128,044	123,879	79,874	114,961	88,661	69,423
Whale oils	33,996	28,440	32,603	65,130	66,080	51,522	19,250	6,889
Palm-kernel oil	16,516	37,173	26,443	111,514	29,498	3,657	197	1,113
Olive foots	30,411	31,507	23,965	17,984	15,013	19,068	14,958	10,029
Soybean oil	1,354	2,549	5,023	10,274	10,897	11,177	17,612	24,737
Babassu oil	.....	.....	8,993	14,308	8,289	37,633	41,221	29,753

APPROXIMATE CONSTANTS OF SOAP OILS

Oil or Fat	Sp. Gr. (Water at 15°)	Sap. No.	Iodine Value	Titer °C.	% Non-Sap.
Castor Oil	0.958—0.968	177—187	83— 86	3°—	0.3—0.5%
Coconut Oil	0.926	251—263	8— 10	20°—23°	0.2
Corn Oil	0.921—0.927	186—193	120—130	15°—19°	1.5—3.0%
Cottonseed Oil	0.915—0.926	191—196	103—115	32°—38°	0.7—1.6%
Linseed Oil	0.931—0.938	189—196	170—204	19°—21°	0.5—1.6%
Olive Oil Foots	0.914—0.919	189—195	79— 86	17°—21°	2.0—3.0%
Palm Oil	0.921—0.925	196—205	48— 58	42°—45°	0.7—1.0%
Palm Kernel Oil	0.873/99°	244—255	16— 23	20°—25°	0.2—0.5%
Peanut Oil	0.911—0.926	185—192	83— 95	28°—30°	0.5—1.0%
Sesame Oil	0.920—0.926	188—193	103—115	21°—24°	1.0—1.8%
Soya Bean Oil	0.922—0.925	191—194	125—140	21°—24°	0.3—0.6%
Tallow (beef)	0.943—0.952	193—200	35— 47	43°—45°	
Whale Oil	0.922—0.926	188—194	110—150	22°—24°	1.0—3.0%

FATTY ACIDS IN SOAP OILS

Glycerides of Acids	Coconut Oil	Corn Oil	Cottonseed Oil	Linseed Oil	Olive Oil	Palm Oil	Palm Kernel Oil	Peanut Oil	Sesame Oil	Soyabean Oil	Tallow	Whale Oil
Arachidic	—	0.4	0.6	—	0.2	—	—	3.6	4.0	0.7	—	—
Lignoceric	—	0.2	—	—	—	0.1	—	2.9	0.4	0.1	—	—
Linolenic	—	—	—	34.1	—	—	—	—	—	2.2	—	—
Linoleic	—	39.1	42.0	48.5	3.9	9.5	1.0	23.1	35.2	49.3	—	20.0
Myristic	20.0	—	0.4	—	Trace	0.6	16.0	—	—	—	2.0	8.0
Oleic	2.0	43.4	35.0	5.0	83.1	43.2	16.5	56.7	46.0	32.0	44.5	25.0
Palmitic	7.0	7.3	20.0	2.7	9.2	44.0	6.5	7.3	7.3	6.5	29.0	12.0
Palmitoleic	—	—	—	—	—	—	—	—	—	—	—	17.0
Stearic	5.0	3.3	2.0	5.4	2.0	2.9	1.0	5.5	4.4	4.2	24.5	—

Coconut oil also contains 10% Capric, 2% Caproic, 9% Caprylic and 45% Lauric. Palm Kernel Oil contains 6% Capric, 3% Caprylic and 50% Lauric. Whale Oil contains 18% Clupandonic.

Comparative Values of Caustic Soda Solutions

% NaOH	% Na_2O	Be 60° F.	Tw. 60° F.	Sp. Gr. 60° F. @ 60° F.	% NaOH	% Na_2O	Be 60° F.	Tw. 60° F.	Sp. Gr. 60° F. @ 60° F.
1	.77	1.6	2.2	1.011	26	20.18	32.4	57.6	1.288
2	1.55	3.1	4.4	1.022	27	20.95	33.4	59.4	1.299
3	2.32	4.6	6.6	1.033	28	21.70	34.3	62.0	1.310
4	3.10	6.3	9.0	1.045	29	22.40	35.2	64.0	1.320
5	3.88	7.7	11.2	1.056	30	23.15	36.1	66.2	1.331
6	4.65	9.1	13.4	1.067	31	24.00	36.9	68.2	1.341
7	5.39	10.5	15.6	1.078	32	24.80	37.8	70.4	1.352
8	6.20	11.9	17.8	1.089	33	25.60	38.6	72.4	1.362
9	6.98	13.2	20.0	1.100	34	26.38	39.4	74.6	1.373
10	7.75	14.5	22.2	1.111	35	27.15	40.2	76.6	1.383
11	8.53	15.8	24.4	1.122	36	27.90	40.9	78.6	1.393
12	9.30	17.1	26.6	1.133	37	28.70	41.7	80.6	1.403
13	10.09	18.3	28.8	1.144	38	29.45	42.4	82.6	1.413
14	10.85	19.5	31.0	1.155	39	30.22	43.1	84.6	1.423
15	11.62	20.7	33.4	1.167	40	31.00	43.8	86.6	1.433
16	12.40	21.9	35.6	1.178	41	31.80	44.5	88.6	1.443
17	13.20	23.1	37.8	1.189	42	32.60	45.2	90.6	1.453
18	13.98	24.2	40.0	1.200	43	33.35	45.9	92.6	1.463
19	14.72	25.2	42.0	1.210	44	34.10	46.5	94.4	1.472
20	15.50	26.3	44.2	1.221	45	34.90	47.1	96.2	1.481
21	16.30	27.4	46.6	1.233	46	35.66	47.8	98.2	1.491
22	17.08	28.5	48.8	1.244	47	36.45	48.4	100.2	1.501
23	17.85	29.5	51.0	1.255	48	37.22	49.0	102.0	1.510
24	18.60	30.5	53.2	1.266	49	37.99	49.6	104.0	1.520
25	19.40	31.5	55.4	1.277	50	38.75	50.2	105.8	1.529

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